

# Revitalizing Auto Communities Environmental Response (RACER) Trust

## **2019 ANNUAL GROUNDWATER MONITORING REPORT**

RACER Trust Lansing Industrial Land  
Lansing, Michigan

May 4, 2020

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RACER Trust Lansing Industrial Land  
Lansing, Michigan



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## Acronyms and Abbreviations

|               |                                                             |
|---------------|-------------------------------------------------------------|
| Annual Report | 2018 Annual Groundwater Monitoring Report                   |
| APC Site      | former Adam's Plating Company Superfund Site                |
| Arcadis       | Arcadis of Michigan, LLC                                    |
| bgs           | below ground surface                                        |
| COC           | constituent of concern                                      |
| CSM           | Conceptual Site Model                                       |
| DW criteria   | Part 201 residential drinking water criteria                |
| EGLE          | Michigan Department of Environment, Great Lakes, and Energy |
| FSP           | Field Sampling Plan                                         |
| ft/ft         | foot per foot                                               |
| GSI           | groundwater-surface water interface                         |
| IGMP          | Revised Interim Groundwater Monitoring Work Plan            |
| LNAPL         | light nonaqueous phase liquid                               |
| µg/L          | microgram per liter                                         |
| mg/L          | milligram per liter                                         |
| NTU           | nephelometric turbidity unit                                |
| PCB           | polychlorinated biphenyl                                    |
| PFAS          | per- and polyfluoroalkyl substances                         |
| QAPP          | Quality Assurance Project Plan                              |
| QC            | quality control                                             |
| RACER         | Revitalizing Auto Communities Environmental Response        |
| RCRA          | Resource Conservation and Recovery Act                      |
| RL            | reporting limit                                             |
| RRD           | Remediation and Redevelopment Act                           |
| SIM           | selected ion monitoring                                     |
| Site          | RACER Trust Plants 2, 3, and 6 located in Lansing, Michigan |
| SOP           | Standard Operating Procedure                                |
| TestAmerica   | TestAmerica Laboratories, Inc. in Burlington, Vermont       |
| USEPA         | United States Environmental Protection Agency               |
| VOC           | volatile organic compound                                   |

## 1 INTRODUCTION

On behalf of the Revitalizing Auto Communities Environmental Response (RACER) Trust, Arcadis of Michigan, LLC (Arcadis) prepared this 2019 Annual Groundwater Monitoring Report (Annual Report) to support the Resource Conservation and Recovery Act (RCRA) corrective action process for RACER Trust Lansing Industrial Land, located in Lansing, Michigan (Site). The Site consists of former Plants 2, 3 and 6. This Annual Report summarizes groundwater monitoring completed between January and December 2019, consistent with the requirements of the Revised Interim Groundwater Monitoring Work Plan (IGMP; Arcadis 2019a), which was approved by the Michigan Department of Environment, Great Lakes and Energy (EGLE) on July 25, 2019.

The following sampling events were completed in accordance with the IGMP (Arcadis 2017a) or 2019 Revised IGMP (Arcadis 2019a):

- *First quarter 2019.* A quarterly event completed in March 2019 in accordance with the 2017 IGMP.
- *Second quarter 2019.* An annual event completed in June 2019 in accordance with the 2017 IGMP
- *Third quarter 2019.* A quarterly event completed in September 2019 in accordance with the 2019 Revised IGMP.
- *Fourth quarter 2019.* A semi-annual event completed in December 2019 in accordance with the 2019 Revised IGMP.

As outlined in the revised IGMP (Arcadis 2019a), this Annual Report includes quarterly data (e.g., tabulated data, figures, analytical narrative) and includes the following:

- Objective and scope of the sampling events
- Summary of groundwater elevations and light nonaqueous phase liquid (LNAPL) gauging data, including contour maps and trend plots
- Summary of LNAPL recovery completed in accordance with the 2015 LNAPL Removal Work Plan (Arcadis 2015b)
- Figures, tables, and a brief narrative summarizing the groundwater sampling results
- Groundwater elevation contour maps for various water bearing zones
- Updated groundwater plume stability evaluation
- Summary of Lansing Township water supply well sampling
- Conclusions and recommendations for revisions to the IGMP as appropriate.

## 2 SAMPLING METHODS

This section discusses the sampling methodology used at the Site. The Field Sampling Plan (FSP; Arcadis 2011a) for the Site provides detailed methodology regarding the collection of groundwater samples and includes appropriate Arcadis standard operating procedures (SOPs).

## 2.1 Groundwater Monitoring Methods

During the second quarter 2019 annual sampling event, and before sample collection, site-wide gauging was completed using an electronic water level meter. LNAPL wells were gauged using an oil/water interface probe. During the first, third, and fourth quarter 2019 sampling events, gauging was limited to those wells selected for sampling and LNAPL monitoring. All gauging was completed within 24 hours with few exceptions due to access or other issues. Groundwater samples were collected in a manner consistent with the low-flow sampling techniques outlined in the FSP and the SOP for low-flow sample collection (Arcadis 2011a), and generally consistent with EGLE's Remediation and Redevelopment Division (RRD) Op Memo 2, Attachment 5 (EGLE 2004). An emphasis was placed on collecting low-turbidity samples (less than 10 nephelometric turbidity units [NTUs]) for metals analysis.

Groundwater samples were analyzed following EGLE's RRD Op Memo 2, Attachment 5 guidelines (EGLE 2004), as established in the RCRA Facility Investigation Work Plan (Phase 1; Arcadis 2011b). The most current sampling matrix provided as part of the 2019 Revised IGMP (Arcadis 2019a) is included as **Table 1**. In general, groundwater samples were submitted for analysis for one or more of the following:

- 1,4-Dioxane by United States Environmental Protection Agency (USEPA) Method 8260B SIM
- 1,4-Dioxane by USEPA Drinking Water Method 522, which provides a reporting limit (RL) of 0.20 microgram per liter (µg/L). (i.e., Lansing Township municipal wells)
- Volatile organic compounds (VOCs) by USEPA Method 8260B
- Selected metals (arsenic, total chromium, copper, lead, nickel, and vanadium) by USEPA Method 6020, and, at discrete locations, metals associated with known impacts (e.g., hexavalent chromium in Area 14 at Plant 3).
- Per- and poly-fluorinated alkyl substances (PFAS) using USEPA Method 537 modified with isotope dilution (DoD QSM 5.1).

### 2.1.1 Quality Control/Quality Assurance

Quality control (QC) samples were collected during the sampling event and included the following:

- One duplicate per every ten samples
- One matrix spike and matrix spike duplicate (MS/MSD) per every 20 samples
- One field blank per sampler per sampling event
- One equipment blank per pump per sampling event, as well as additional equipment blanks from the water level meters used for PFAS sampling

Additionally, trip blanks were included with each cooler containing samples for VOC analysis. One sample delivery group per plant from each quarter underwent complete Tier I validation as defined in USEPA Region *Innovative Approaches to Data Validation*, USEPA Region III (USEPA 1995). Validation reports are included in **Appendix B** along with laboratory analytical reports.

### 2.1.2 Light Nonaqueous Phase Liquid Monitoring

LNAPL monitoring wells were gauged during the first, second, and fourth quarter events with an oil/water interface probe. Gauging methods were consistent with the 2019 Revised Interim Groundwater Monitoring Work Plan (Arcadis 2019a).

## 2.2 Groundwater Elevation Monitoring

Monitoring wells were gauged during sampling using an electronic water level meter generally within a 24-hour period. To evaluate seasonality, site-wide gauging is rotated annually between the second quarter and fourth quarter events. In 2019, site-wide gauging was completed during the second quarter annual sampling event. During the first, third, and fourth quarter sampling events, gauging was limited to those wells selected for sampling. Gauging methods were consistent with the FSP (Arcadis 2011a) and IGMP (Arcadis 2019a).

## 3 RESULTS

This section summarizes the sampling activities completed between January and December 2019. **Table 2** presents groundwater analytical data collected during the reporting period. As a frame of reference, figures showing exceedances of the Part 201 residential drinking water criteria (DW criteria) are provided as **Figures 1** through **4**, and **6**. **Appendices B** and **C** provide the validated laboratory analytical reports and low-flow groundwater sampling field logs, respectively.

### 3.1 Groundwater Monitoring Results

Groundwater analytical results are summarized on **Table 2** with exceedances of Part 201 Drinking Water (DW) Criteria highlighted in gray and summarized on **Figures 1** through **4**, and **Figure 6**. Results of the 2019 sampling event are summarized below.

- **1,4-Dioxane:** 1,4-Dioxane results (**Figure 1**) are generally consistent with the 2018 Annual Groundwater Monitoring Report (Arcadis 2019b) and 2019 Semi Annual Groundwater Monitoring Report (Arcadis 2019c).
  - o In 2018, detections of 1,4-dioxane in monitoring wells MW-16-74, MW-16-75, and MW-16-77, at the toe of the lower 1,4-dioxane plume suggested additional migration of the plume to the east-southeast (Arcadis 2019b). In 2019, 1,4-dioxane concentrations of 2 µg/L were detected in MW-16-74 and at MW-16-75, and not detected in MW-16-77 suggesting limited additional migration.
  - o Increasing concentrations were observed within the northeast lobe of the lower 1,4-dioxane plume on Plant 2 at wells MW-16-85 and MW-17-86:
    - MW-16-85: 1,4-Dioxane concentrations have increased from 1-7 µg/L in 2018 to 16-17 µg/L in 2019.
    - MW-17-86: 1,4-Dioxane concentrations have increased from 44 - 75 µg/L in 2018 to 75-90 µg/L in 2019.

- Other weathered bedrock monitoring wells located near the northeast lobe including MW-14-61 and MW-16-84, contain 1,4-dioxane concentrations generally consistent with 2018 results.
- o Monitoring wells located near the western Plant 2 property boundary including MW-14-58 in the perched zone, and MW-14-56, MW-15-73, and MW-16-80 in weathered bedrock, show concentrations of 1,4-dioxane exceeding the DW criterion of 7.2 µg/L in 2019. The detected concentrations are generally consistent with previous results observed at these locations. As previously reported, detections of 1,4-dioxane at these locations could be associated, in part, with the former Adams Plating Company Site (APC Site). Commingling of impacts from the APC site confounds further delineation to the west.
- **VOCs:** VOCs exceeding DW Criteria in at least one monitoring well during 2019 include vinyl chloride, as well as sporadic exceedances of bromomethane, benzene, ethylbenzene, xylene, 1,1-dichloroethane, and 1,2,4-trimethylbenzene. VOC exceedances are shown on **Figure 2**. This is consistent with previous groundwater investigation and monitoring results.
  - o VOCs are primarily limited to the perched zone, however, detections of VOCs have been observed in weathered bedrock at Plant 2 at concentrations below DW Criteria:
    - MW-16-76: contained carbon disulfide at a concentration of 1 µg/L, less than the DW criterion of 800 µg/L.
    - MW-16-82: contained acetone at a concentration of 17 µg/L, less than the DW criterion of 730 µg/L.
    - MW-17-86: contained chloroethane at a concentration of 21 µg/L, less than the DW criterion of 430 µg/L.

VOCs will continue to be monitored in the weathered bedrock zone, including additional sampling and analysis of VOCs, as appropriate. Suggested changes to the IGMP are included in Section 5.1.
- **Metals:** Metals exceeding DW Criteria in at least one monitoring well during this event include arsenic, nickel, hexavalent chromium, and vanadium (**Figure 3**). The metals results are consistent with previous sampling events.
  - o MW-13-32. Total nickel was detected in this shallow monitoring well, located in the southeastern corner of Plant 3 within Area 16, at a concentration of 0.390 milligrams per liter (mg/L; DW criterion: 0.10 mg/L) during the second quarter of 2019. Groundwater elevation in this area has indicated that perched groundwater flow is westerly, onto the Site. A summary of the nickel occurrence at Plant 3 was provided to EGLE for both soil and groundwater (Arcadis 2014b, 2015c, 2015d).
  - o MW-13-36R. Vanadium was detected in this shallow well located near the eastern boundary of Plant 6, at a concentration of 0.009 mg/Kg, exceeding the DW criteria of 0.005 mg/Kg. This result is consistent with previous analytical results for MW-13-36R. As outlined in the 2018 Annual Groundwater Monitoring Report (Arcadis 2019b), an evaluation of the plume stability indicates that metals at the Site are stable and are spatially limited

- o MWBP-10-UST5-6. Arsenic was detected in the perched zone located near the southern boundary of Plant 6, at a concentration of 0.012 mg/Kg, exceeding the DW criteria of 0.005 mg/Kg. MWBP-10-UST5-6 is screened in a confined sand unit at approximately 30 feet bgs, which is also screened by several other monitoring wells nearby including MW-12-16. Groundwater elevations for these wells have consistently shown a northerly flow, onto the Site, since 2014. Based on the hydraulic isolation of this well and the apparent northerly groundwater flow direction, EGLE has agreed that arsenic at MW-12-16 location is related to regional background conditions and not associated with Site impacts. Arsenic detected at MWBP-10-UST5-6 is also likely attributed to regional background conditions rather than Site impacts.
- **PFOS and PFOA:** concentrations exceeded the combined DW Criteria of 70 ng/L at 14 perched monitoring well locations in 2019 (**Figure 4**). The PFAS results are generally consistent with previous summaries (Arcadis 2018a, 2018b, 2019d, 2019e).
  - o MW-18-88 and MW-18-95: Perched monitoring wells located along the eastern boundary of Plant 3, contained PFOS concentrations higher than the combined DW Criteria. PFOS and PFOA did not exceed the DW Criteria at the five perched monitoring wells installed as sentinels in the City of Lansing's Dunnebacke and Westside Parks.
  - o MW-91-2: A deep overburden well located near the PFAS source area on Plant 3 contained PFOS at a concentration of 203 ng/L during the June 2019 sampling event. Previous detections of PFOS in MW-91-2 ranged from 2 to 42 ng/L. This well was older and did not utilize dual-case construction techniques; therefore, leakage through the well seal from the impacted perched zone to the deep overburden was a concern. In accordance with the scope of work outlined in the 2019 Plant 3 PFAS CSM Addendum (Arcadis 2019d) and approved by EGLE on October 31, 2019, MW-91-2 was abandoned and replaced with MW-91-2R, a double cased well. Initial sampling of MW-91-2R resulted in an estimated (J flagged) PFOS concentration of 2.13 ng/L. Arcadis will continue to monitor MW-91-2R as a sentinel for potential vertical migration within the Plant 3 PFAS source area.
  - o MW-12-12 and MW-13-36R: Located along the eastern boundary of Plant 6, contained concentrations of PFOS and PFOA that exceed the combined DW criteria. PFOS and PFOA did not exceed DW Criteria at the vertical aquifer profiling (VAP) samples completed to delineate PFAS impacts east of Plant 6. Off-site groundwater monitoring wells are proposed to provide monitoring locations east of Plant 6 (Arcadis 2019g).
- In addition to DW Criteria exceedances, PFOS exceeds the GSI Criteria of 12 ng/L at 19 perched monitoring wells during the 2019 groundwater monitoring events (**Figure 5**).
  - o Monitoring wells MW-18-104, MW-18-105, and MW-18-106, located east of Plant 3, showed concentration of PFOS ranging from 13.8 ng/L to 51.6 ng/L. Of these, MW-19-104 has been relatively stable with concentrations of 2.5 ng/L in March 2019, 13.8 ng/L in June and 10.5 ng/L in December. PFOS at Well MW-18-105 was consistent throughout 2019 at concentrations below GSI Criteria until December 2019 (23.8 ng/L). The PFOS concentration at well MW-18-106 has decreased from a high of 51.6 ng/L in March 2019 to below GSI Criteria (2.1 ng/L) in December 2019. Off-site PFOS exceedances will continue to be monitored to evaluate concentration trends and plume stability.

- o MW-19-113, a perched monitoring well installed as a sentinel to the north of the Plant 3 perched PFAS extent, contained a PFOS concentration of 20.1 ng/L, above GSI Criteria. MW-19-113 will continue to be monitored to evaluate trends.
- In addition to PFOS and PFOA, additional PFAS have been detected at the Site. **Figure 6** illustrates total concentrations for the 22 compounds other than PFOS and PFOA included on the 2018 EGLE Recommended PFAS Analyte List (EGLE, 2018). Specific results for other PFAS are summarized on **Table 2**. In general, other PFAS concentrations appear to correlate to PFOS and PFOA concentrations and decrease with distance from PFOS and PFOA source areas. The Recommended PFAS Analyte List was updated in October of 2019 to include four additional compounds (EGLE, 2019) which will be included in all future PFAS monitoring at the site.

### 3.1.1 Municipal Well Sampling Results

The results of the Lansing Township well sampling indicate 1,4-dioxane concentrations of 0.23 µg/L in Lansing Township well TWP-90-03, 0.22 µg/L in TWP-90-04, and 0.42 µg/L TWP-90-05. These concentrations are consistent with those detected in December 2018 (0.18 ng/L to 0.36 ng/L). The locations of the municipal wells and the bedrock 1,4-dioxane results are summarized on **Figure 7**

Analytical results for the municipal wells are included in **Table 2**. Widespread 1,4-dioxane detections are potentially related to a 1,4-dioxane “background condition” in and around Lansing, as demonstrated by the low-level 1,4-dioxane sampling completed at the Site in 2017. Sporadic detections of 1,4-dioxane in the bedrock monitoring wells installed along the core of the plume ranged from 0.15 µg/L to 4 µg/L and did not exceed drinking water criteria during 2019. Annual sampling of Lansing Township wells will continue to monitor for 1,4-dioxane trends.

## 3.2 Light Nonaqueous Phase Liquid Monitoring

LNAPL is present in the central portion of Plant 2 (Area 5-2) and in the north-central portion of Plant 3 (Area 17). LNAPL monitoring well locations and approximate extent of LNAPL are presented on figures provided in **Appendix E**. Trend plots indicate that, in general, LNAPL (when present) thickness gradually increases until it reaches equilibrium within the well and then stabilizes. For the deeper LNAPL, the wells take longer to equilibrate with the confined LNAPL conditions relative to the static water level within the formation. Based on the monitoring results, there is no indication of LNAPL migration. **Table 3** summarizes measured LNAPL thickness, and **Appendix D** includes LNAPL trend plots.

### 3.2.1 Light Nonaqueous Phase Liquid Recovery

As outlined in the Summary of LNAPL Transmissivity Results and the 2015 LNAPL Removal Work Plan (Arcadis 2015a, 2015b), the low LNAPL transmissivity suggests that recoverability of the Plant 2 LNAPL is low. However, given that PCBs are present in the deeper LNAPL zone at elevated concentrations, and the LNAPL accumulates at significant thickness in several wells due to the presence of confined LNAPL conditions, LNAPL had been manually recovered from several wells since 2016 (initially quarterly, then monthly beginning in 2017). Due to supplemental LNAPL sampling and severe weather during the first quarter of 2019, LNAPL recovery was not completed until April 2019. LNAPL recovery from April through August 2019 is summarized in **Table 4**. In 2019, an estimated 24.4 gallons of LNAPL were recovered



from the four wells meeting the criteria outlined as part of the 2015 LNAPL Removal Work Plan (Arcadis 2015b).

Based on the low recoverability and the evaluation of LNAPL mitigation summarized in the 2020 LNAPL Conceptual Site Model (Arcadis 2020), and in accordance with the EGLE approved 2019 Revised IGMP (Arcadis 2019a), manual LNAPL recovery was discontinued in September of 2019.

### 3.3 Groundwater Elevation Monitoring

In 2019, a site-wide groundwater elevation survey was completed during the annual event (June 2019). Additional groundwater elevation measurements were collected at sampled wells during the semi-annual and quarterly events. **Table 5** summarizes groundwater elevation measurements collected at the Site. Groundwater elevation trend graphs for key wells at each plant are provided in **Appendix E**. Trends within each water-bearing zone are discussed below.

#### 3.3.1 Perched Zone

Due to the predominance of clay-rich sediment, the perched zone is interbedded and has an overall low permeability and is characterized by isolated sand zones within layers of silt and clay. The potentiometric surface measured within the perched zones is presented on **Figure 8** (Plants 2 and 6) and **Figure 9** (Plant 3). Both figures include groundwater contours for all wells less than 25 feet deep. The lower conductivity clay and silt that dominate this zone result in high horizontal and vertical gradients. Sand zones are discontinuous and often do not correlate from well to well, and minor variations in well screen elevation have a significant impact on the potentiometric surface. Therefore, although the contour maps represent the overall shallow potentiometric surface, they are of limited use to determine groundwater flow direction.

The trend graphs included in **Appendix E** indicate that groundwater elevations in the perched zone have been stable to increasing during the period of monitoring beginning in 2012. During October and November 2018, an additional round of gauging was completed at Plant 3 before storm sewer bulkheading. Comparison of pre-bulkheading groundwater elevations to groundwater elevations observed during December 2018 and 2019 shows minor fluctuations (both increasing and decreasing) that are within the range of seasonal variation. Evaluation of groundwater elevations on Plants 2 and 3 will continue during 2020 to evaluate the effect of storm sewer bulkheading.

#### 3.3.2 Deep Overburden

Saturated deep overburden is present only at Plant 3. Groundwater present within the deep overburden is hydraulically connected to the weathered bedrock and bedrock zones. **Figure 10** presents groundwater elevation contours for deep overburden wells located on Plant 3. In the northern portion of Plant 3, the apparent groundwater gradient is northwesterly. In the southwestern portion of Plant 3, a groundwater high is apparent beneath the former coliseum area with groundwater flow to the southeast, consistent with the lower 1,4-dioxane distribution.

The trend graphs included in **Appendix E** show that steady increases in water levels were observed in deep overburden water levels beginning in 2016 likely related to increased precipitation, as well as long-term changes in municipal pumping.



### 3.3.3 Weathered Bedrock and Bedrock

The long-term trends for bedrock monitoring wells show an increasing potentiometric surface in bedrock and weathered bedrock beginning primarily in 2016. Potentiometric surface trend graphs for select bedrock wells are included in **Appendix E**. The increase in potentiometric surface of the bedrock wells was accompanied by a general decrease in the vertical gradient within the Saginaw formation (from 0.44 ft/ft in 2016 to 0.13 ft/ft in 2018 and 0.28 ft/ft in 2019). The effect, as documented in the December 5, 2019 Update Meeting Presentation provided to EGLE, is an overall flatter, more variable bedrock horizontal gradient with a west to east flow component observed in the central part of Plant 2. The rise in potentiometric surface, and overall increasing trend observed since 2016, is likely attributed to changes in municipal pumping patterns, both long-term and seasonally.

Similar to the perched zone, the depth of a monitoring well within the weathered bedrock or bedrock zones plays a large role in the potentiometric surface observed at that location. Large vertical gradients occur in formations with vertical anisotropy and indicate a lack of vertical groundwater communication. Traditional groundwater elevation contour maps were not prepared for the weathered bedrock wells or bedrock wells because they would be of limited use for interpreting groundwater flow direction and transport.

For the bedrock (and by extension, the weathered bedrock), the effective head or “corrected” groundwater elevation can be calculated based on the observed vertical gradients. As indicated in **Table 6**, the vertical gradient tends to be limited near the coliseum and increases to the south to a maximum of 0.35 foot per foot (ft/ft) downward at wells MW-15-72/MW-12-05R (located in central Plant 2) before stabilizing to 0.34 ft/ft downward at wells MW-13-52/MW-13-50 (located on western Plant 6). This variation in vertical gradient appears to coincide with the transition between bedrock formations. Near the coliseum, where the bedrock encountered consists of the more uniform and permeable Grand River Formation, the vertical gradient is negligible. To the south, within the interbedded sandstone and shale of the Saginaw Formation, there is a significant vertical gradient due to the vertical anisotropy created by the interbedded shale and sandstone of the Saginaw Formation. Review of the bedrock wells and other deep boring logs suggests an approximate geologic contact between the Grand River and Saginaw Formations oriented roughly southwest to northeast. **Figure 11** includes the interpreted location of the geologic contact.

To calculate the effective head for the bedrock (**Figure 11**), an average downward gradient 0.28 ft/ft was applied to bedrock monitoring wells installed within the Saginaw Formation as follows:

$$GW_{\text{eff}} = GW - (dh/dl * \Delta\text{Elev})$$

Where:

$GW_{\text{eff}}$  = effective groundwater elevation

GW = measured groundwater elevation

dh/dl = vertical gradient

$\Delta\text{Elev}$  = change in elevation between deepest well and measured well

As shown on **Figure 11**, the corrected bedrock groundwater contours are a good match for the distribution of the lower 1,4-dioxane plume located within the weathered bedrock zone. The corrected potentiometric surface shows an easterly component of flow within the bedrock/weathered bedrock beneath the Plant 2 LNAPL area, an observation supported by the easterly migration of the lower 1,4-dioxane plume.

## 4 GROUNDWATER PLUME STABILITY

A preliminary geochemical and plume stability assessment for groundwater at the Site was completed in April 2014 (Arcadis 2014b). The primary objective of this assessment was to provide an initial evaluation of plume stability and determine the suitability of monitored plume stability as a remedial alternative. The preliminary plume stability assessment used data collected between October 2011 and first quarter 2014 as well as geochemical data collected during the August and September 2013 events.

The plume stability assessment has been updated annually and incorporated into the annual reports. Stability assessments have been generally consistent and demonstrate that increasing trends are primarily limited to 1,4-dioxane in weathered bedrock wells and non-site-related metals in perched wells mobilized by changes in groundwater geochemistry associated with the Site. The plume stability assessment presented in this section represents an updated analysis of time-series concentration trends using data collected through fourth quarter 2019.

The updated statistical analysis of dissolved-phase COC concentrations with time was completed using the Mann-Kendall slope trend test, consistent with the methodology used in previous evaluations. The updated analysis for 2019 includes all wells that meet the following criteria:

- At least four sampling events have been completed.
- At least 65 percent of the sampling results were greater than detection limits (minimum of three sampling results greater than detection limits).
- At least one detection in the dataset exceeded the lowest relevant criteria.

The plume stability assessment was completed in accordance with USEPA guidance (USEPA 2009). Correlations were accepted as significant for p-values less than or equal to 0.10 (90 percent confidence level). If no trend was identified, concentrations were reviewed visually and, if appropriate, noted as likely stable. Additional information regarding the Mann-Kendall analysis and methods is provided in the 2014 Preliminary Groundwater Geochemical and Plume Stability Assessment (Arcadis 2014b).

The Mann-Kendall trend test was used as a non-parametric method to evaluate if a statistically significant unidirectional (consistently increasing or decreasing) trend was observed during the monitoring period.

All direction for conducting the Mann-Kendall test have been provided in Section 17.3.2 of the US EPA guidance document (USEPA 2009).

The following updated plume stability evaluation includes the following information:

- **Table 7** presents comprehensive Mann-Kendall analysis results.
- DW criteria exceedances during the 2019 sampling events are shown on **Figures 2** through **7**.

- The overall trend results are shown on **Figures 12** and **13** for perched and weathered bedrock zones, respectively.
- **Appendix F** presents plots of concentrations through time for all well/COC pairs meeting criteria for trend analysis.

## 4.1 Perched Zone

### 4.1.1 1,4-Dioxane

The 1,4-dioxane plume generally appears to be stable to decreasing within the perched zone as demonstrated with 2014 plume stability evaluation and each successive annual report (Arcadis 2014b, 2015d, 2016a, 2017b, 2018c, 2019b). Plant 2 perched monitoring well MW-14-58 and Plant 6 interbedded zone monitoring well MW-02-03(6) both show statistically increasing trends. However, 1,4-dioxane concentrations in MW-14-58 have fluctuated significantly within the range of 12 µg/L to 78 µg/L since 2014, and 1,4-dioxane concentrations in MW-02-03(6) have been decreasing since 2017.

### 4.1.2 Volatile Organic Compounds

Concentrations of VOCs in the perched zone are sporadic, and a large plume footprint has not been observed; rather, VOC concentrations in groundwater greater than DW criteria are limited to discrete source areas (e.g., Area 2, Area 9) and areas immediately surrounding observed LNAPL at Plants 2 and 3. Review of VOC data found that the criteria for statistical assessment were met for only three locations:

- MW-14-59 – A monitoring well located near the Plant 2 LNAPL exhibits a decreasing trend for 1,1-dichloroethene
- MW-14-60 – A monitoring well located near the Plant 2 LNAPL demonstrates an increasing trend for vinyl chloride with a concentration of 12 µg/L during June 2019, a slight increase over the previous detection of 9 µg/L during May 2018.
- MWBP-12-UST1-4 - An increasing benzene trend was identified in MWBP-12-UST1-4 located near the southern property boundary of Plant 6. Benzene concentrations in MWBP-12-UST1-4, installed at a depth of 15-25 feet, steadily increased from 2013 to June 2015, with a maximum concentration of 157 µg/L. Benzene concentrations were sporadic from 2016 through 2018 and had decreased to 6 µg/L in December 2018. In June 2019, the benzene concentration increased to 284 µg/L. Well MWBP-12A-UST1-4 located between MWBP-12-UST1-4 and the property boundary at a depth of 28-38 feet, has not yielded detectable benzene concentrations during recent sampling events. Monitoring of MWBP-12-UST1-4 and MWBP-12A-UST1-4 will continue to allow for evaluation of benzene migration.

### 4.1.3 Metals

During previous plume stability assessments, most statistical analyses for concentrations of metals in perched zone monitoring wells were determined to be decreasing or exhibit no trend, suggesting overall stability in metals impacts greater than criteria. The trend evaluation for metals focused on monitoring wells near the Site boundary to evaluate the potential for off-site metal impacts. The following increasing

trends were observed, with remaining monitoring wells at the Site boundary exhibiting stable to decreasing concentrations of metals:

- Arsenic in MWBP-10-UST5-6, located northwest of MW-12-16 along the southern Plant 6 boundary, was detected at a concentration of 0.012 mg/L in June 2019. Arsenic concentrations at this location are within the range of state-wide background concentrations (Cummings 1989), and water levels measured at wells within the same sand unit at Area 9 show a consistent gradient to the north (flow onto the Site), suggesting that arsenic detected in MW-12-16 is not site-related. As agreed with EGLE, additional evaluation beyond continued monitoring is not required for the area.

#### **4.1.4 PFOS and PFOA**

Locations for trend evaluation of PFOS and PFOA are limited to two perched monitoring wells on Plant 3. The majority of monitoring wells designated for evaluating stability of PFAS impacts were installed in 2018 and 2019, and do not yet have enough sampling events with detections and exceedances to meet to criteria for Mann-Kendall analysis. A more extensive evaluation of PFAS stability will be included in the 2020 Annual Groundwater Monitoring Report. Data has been analyzed for the following wells:

- CH-14-RO, a perched monitoring well installed within the former chrome plating area on Plant 3, contains elevated concentrations of PFOS and PFOA (11,900 ng/L of PFOS, and a combined concentration of PFOS and PFOA at 12,000 ng/L in December 2019). Concentrations of both PFOS and PFOA in CH-14-RO appear to be stable and no statistically significant trends were observed.
- P6-SB-07, a perched monitoring well located on Plant 6 near a former phosphoric acid wash rinse water cistern, contains elevated concentrations of PFOS and PFOA and is located within a source area. A decreasing trend was observed for combined PFOS and PFOA at P6-SB-07. PFOA concentrations of 1,360, 1,070, and 688 ng/L were observed during the second, third, and fourth quarter 2019 sampling events respectively, with corresponding PFOS concentrations of 103, 66.2, and 47.4 ng/L respectively.

## **4.2 Deep Overburden and Weathered Bedrock**

### **4.2.1 1,4-Dioxane**

Since the initial plume stability assessment in 2014, concentrations within the lower 1,4-dioxane plume have generally shifted toward decreasing to stable trends in the northern portion of the plume on Plant 3, and stable to increasing trends towards the toe of the plume and the Plant 2 LNAPL area. Nine weathered bedrock and deep overburden wells exhibited increasing trends for 1,4-dioxane on Plants 2 and 3 (MW-13-34, MW-13-45, MW-14-56, MW-14-61, MW-15-73, MW-16-81, MW-16-84, MW-16-85, and MW-17-86). Notable trends within the lower 1,4-dioxane plume include the following:

- MW-13-34 and MW-13-48 are nested at the Plant 3 southern property boundary and installed within the weathered bedrock and deep overburden, respectively. MW-13-34 exhibits an increasing trend for 1,4-dioxane and concentrations in MW-13-34 have been slowly increasing since initial sampling in 2013, though samples taken in 2018 were slightly lower. MW-13-48 previously exhibited an increasing trend (Arcadis 2019b), however, concentrations in MW-13-48 have been generally decreasing since 2015 and it no longer represents a significant trend. A biosparge system was

installed in 2019 upgradient of this location and 1,4-dioxane concentrations are expected to stabilize and then decrease in response to the active remedy.

- Monitoring wells MW-15-73 and MW-13-45 are located within the weathered bedrock toward the west and east extents of the lower 1,4-dioxane plume. Together with monitoring well MW-13-43, which is located along the plume axis, they comprise a transect across the plume. MW-15-73 has shown consistent detections of 1,4-dioxane, with only the two most recent samples (December 2018 and June 2019) exceeding the DW criterion of 7.2 µg/L. This increasing trend could be attributed to contributions from the APC Site as several clean samples have been collected between the lower 1,4-dioxane plume and MW-15-73. Concentrations in MW-13-45 initially increased between 2013 and 2015 but have been stable to decreasing since 2016.
- MW-14-56, a weathered bedrock well located along the western property boundary of Plant 2, shows an increasing trend (i.e., 6 to 14 µg/L) in 1,4-dioxane concentrations and may be related to the former Adams Plating site located upgradient of the well location.
- As part of the 2016 supplemental toe investigation, weathered bedrock monitoring well MW-16-81 was installed to monitor other sub-lobes of the lower 1,4-dioxane plume. 1,4-Dioxane concentrations in MW-16-81 have been steadily increasing since initial sampling in 2016. The increasing trend, coupled with mounding of the bedrock water table in central Plant 2, are indications of leakage from the perched zone.
- MW-16-85 and MW-17-86, additional weathered bedrock sentinel wells installed in 2016 and 2017, east of the Plant 2 LNAPL area, have also demonstrated increasing trends with MW-17-86 steadily increasing since installation, and MW-16-85 exceeding the DW criterion of 7.2 µg/L for the first time in June 2019 (16 µg/L) and December 2019 (17 µg/L). This is an indication of 1,4-dioxane migration associated with the easterly gradient that has become more pronounced in this area since 2017.

A biosparge remedy, which began operating at Plant 3 in 2019 and is currently in the final stages of installation at Plant 2 (Arcadis 2017c), is designed to target the lower 1,4-dioxane plume and will help minimize further expansion and migration of 1,4-dioxane.

## 5 CONCLUSIONS

This Annual Report summarizes the groundwater monitoring activities completed between January and December 2019, consistent with the 2017 and 2019 Revised IGMP (Arcadis 2019a). Based on the results of the sampling and review of the plume stability evaluation, the following conclusions are offered:

- *VOC and Metals.* Groundwater sample results indicate that concentrations of several VOCs and metals exceed residential drinking water criteria during at least one sampling event at the Site. Elevated concentrations of metals are, in most cases, a result of natural geochemical conditions and/or slight shifts in Site geochemistry associated with the presence of VOCs. The exception is nickel on the eastern boundary of Plant 3, which is attributed to off-site conditions.
- *1,4-Dioxane.* 1,4-Dioxane concentrations in the perched zone and weathered bedrock along the western Plant 2 property boundary exceed Part 201 criteria at several locations similar to previous years and are likely commingled with impacts associated with the former APC Site, confounding concentration trends and western delineation.

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- *1,4-Dioxane in Bedrock*. Sporadic detections of 1,4-dioxane in deeper bedrock monitoring wells installed along the core of the plume ranged from 0.15 µg/L to 4 µg/L and did not exceed drinking water criteria during 2019.
  - o Lansing Township wells TWP-90-03, TWP-90-04, and TWP-90-05 were sampled in December 2019 and analyzed for 1,4-dioxane using USEPA Method 522, which has a low reporting level. Concentrations were consistent with previous sampling events ranging from 0.22 to 0.42 µg/L. The low-level detections of 1,4-dioxane in the region may result from several regional and/or numerous nonpoint sources. Annual sampling of Lansing Township wells will continue to monitor the stability of low-level 1,4-dioxane in the municipal wells.
- *PFOS and PFOA*. PFOS and PFOA concentrations exceeded DW Criteria and GSI criteria in perched monitoring wells during 2019 groundwater monitoring events. Three monitoring wells that previously did not exceed criteria contained PFOS above the GSI criterion east of Plant 3 in the City of Lansing Dunnebacke Park. These wells will be monitored to evaluate overall concentration trends and stability.
- *Groundwater potentiometric surface maps*. Contour maps for the three saturated zones at the Site show a complex hydrogeologic system. The potentiometric surface in the perched zone has been stable to increasing in elevation since monitoring began in 2011. Potentiometric levels within the lower zones (deep overburden, weathered bedrock, and bedrock) have been increasing since 2016, potentially related to seasonal variability but likely primarily related to changes in municipal pumping patterns.
  - o *Bedrock groundwater elevations* – Bedrock groundwater measurements were completed in June 2019. A general increase in potentiometric surface of the bedrock wells was accompanied by a general decrease in the vertical gradient within the Saginaw formation (from 0.44 ft/ft in 2016 to 0.13 ft/ft in 2018 and 0.28 ft/ft in 2019). The effect is an overall flatter bedrock horizontal gradient with a variable west to east flow component observed in the central part of Plant 2.
  - o *Plant 3 perched groundwater elevations* – Comparison of pre-bulkheading groundwater elevations (October 2018) to groundwater elevations observed during 2019 shows minor fluctuations that are within the range of seasonal variation. Perched groundwater on Plant 3 appears to exhibit radial flow away from the former press pits in Area 14.
- *Light nonaqueous phase liquid (LNAPL)*. Consistent with previous annual reports, there is no indication of LNAPL migration. Approximately 24.4 gallons of LNAPL were removed from monitoring wells during 2019. Based on the low recoverability and the evaluation of LNAPL mitigation summarized in the 2020 LNAPL Conceptual Site Model (Arcadis 2020), and in accordance with the EGLE approved 2019 Revised IGMP (Arcadis 2019a), manual LNAPL recovery was discontinued in September of 2019.
- *Plume stability*. Results of the 2019 updated statistical analysis are summarized below:
  - o Concentrations of 1,4-dioxane in the perched zone are considered stable based on analysis of the existing dataset.
  - o Wells in the northern portion of the lower 1,4-dioxane plume demonstrate stable to decreasing concentrations. Concentrations in the southern portion of the lower 1,4-dioxane plume are stable to increasing trends, particularly to the east of the Plant 2 LNAPL Area within the northeast lobe.



Increasing weathered bedrock concentrations of 1,4-dioxane in wells near the property boundary (MW-15-73 and MW-14-56) may be due to contributions from the former APC Site.

- o 1,4-Dioxane was not detected above DW Criteria in the deeper bedrock monitoring wells installed along the core of the lower 1,4-dioxane plume or in bedrock at the western property boundary in 2019.

Based on these conclusions, no immediate action is recommended at this time. A biosparge remedy outlined in the 2017 Interim Measure Workplan (Arcadis 2017c) is being implemented to address the 1,4-dioxane plume in the weathered bedrock. Additionally, a comparison of PFAS analytical results to the 2020 Proposed Drinking Water Criteria is being completed and will be submitted under a separate cover.

## 5.1 Proposed IGMP Modifications

Based on the 2019 monitoring results, the following modifications to the 2019 IGMP (Arcadis 2019a) are proposed beginning in second quarter 2020:

- Semi-annual VOC monitoring of weathered bedrock wells located to the east of the LNAPL area including MW-14-61 and MW-17-86 which have shown low detections of chlorinated VOCs, as well as MW-19-120 a monitoring well located east of the observed weathered bedrock VOC impacts.
- Annual VOC monitoring of weathered bedrock wells MW-16-84 and MW-16-85 also located in the northeast lobe area.
- Additional sitewide bedrock gauging events to evaluate the seasonal stability of bedrock groundwater flow patterns. Sitewide bedrock gauging will include all on-site bedrock monitoring wells as well as selected weathered bedrock wells used to estimate the vertical gradient. Proposed bedrock gauging would take place quarterly from the second quarter 2020 through the fourth quarter of 2020, and semi-annual thereafter.

## 6 REFERENCES

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# TABLES



Table 1  
Revised Interim Groundwater Monitoring Summary - Plant 2

Revised May 2019  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Well                                  | Gauging* | Analyte |                  |                 |       |      | Primary Function                                                 | Reason(s) for Change                                                                                                                      |
|---------------------------------------|----------|---------|------------------|-----------------|-------|------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
|                                       |          | VOCs    | 1,4-Dioxane      | Select Metals** | SVOCs | PFAS |                                                                  |                                                                                                                                           |
| Plant 2                               |          |         |                  |                 |       |      |                                                                  |                                                                                                                                           |
| Perched                               |          |         |                  |                 |       |      |                                                                  |                                                                                                                                           |
| MW-01(2)                              | A        | B       |                  |                 |       |      | VOC monitoring                                                   | VOC Change from A to B. MTBE is detected consistently below criteria. No other VOCs detected                                              |
| MW-02(2)                              | Abandon  |         |                  |                 |       |      |                                                                  | consistent non-detects / do not need 4 wells in Area 1                                                                                    |
| MW-03(2)                              | Abandon  |         |                  |                 |       |      |                                                                  | consistent non-detects / do not need 4 wells in Area 1                                                                                    |
| MW-12-09                              | A        | B       | A                |                 |       | SA   | VOC monitoring, perched 1,4-dioxane monitoring, PFAS monitoring  |                                                                                                                                           |
| MW-12-18                              | SA       | B       |                  |                 |       | SA   | VOC monitoring, PFAS monitoring                                  | VOC change from SA to B /1,1-DCE at 1 to 2 ug/L is the only VOC detected / Removed Metals Analysis / Consistent Non-Detects               |
| P2-MW-04                              | A        |         | A                |                 | Qd    |      | perched 1,4-dioxane monitoring, SVOC evaluation                  |                                                                                                                                           |
| P2-SB-20                              | A        |         |                  |                 |       |      | groundwater elevation monitoring                                 | Removed VOC, 1,4-d Analysis / Consistently non-detect for at least the past 6 years                                                       |
| LMW-12-01                             | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA / No LNAPL Observed for 4 Quarters                                                                             |
| LMW-12-02                             | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA / Max LNAPL Thickness Observed in 4 Quarters was 0.04 feet.                                                    |
| LMW-12-03D                            | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA / Eliminate LNAPL Removal                                                                                      |
| LMW-12-03S                            | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA / Max LNAPL Thickness Observed in 4 Quarters was 0.01 feet.                                                    |
| LMW-12-04                             | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA / Max LNAPL Thickness Observed in 4 Quarters was 0.02 feet.                                                    |
| LMW-12-05                             | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA / Max LNAPL Thickness Observed in 4 Quarters was 0.18 feet.                                                    |
| LMW-12-06                             | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA / No LNAPL Observed for 4 Quarters                                                                             |
| LMW-12-07                             | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA / Max LNAPL Thickness Observed in 4 Quarters was 0.02 feet.                                                    |
| LMW-12-08                             | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA                                                                                                                |
| LMW-14-12D                            | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA / Eliminate LNAPL Removal                                                                                      |
| LMW-14-13D                            | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA / No LNAPL Observed for One Year                                                                               |
| LMW-14-14D                            | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA / No LNAPL Observed Monthly for One Year                                                                       |
| LMW-14-15D                            | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA / Eliminate LNAPL Removal                                                                                      |
| LMW-15-16D                            | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA / Eliminate LNAPL Removal                                                                                      |
| LMW-15-17D                            | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA / Max LNAPL Thickness Observed During Monthly Checks for One Year was 0.01 feet.                               |
| PMW-01                                | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA                                                                                                                |
| PMW-02                                | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA                                                                                                                |
| PMW-03                                | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA / No LNAPL Observed for 4 Quarters                                                                             |
| P2-SB-37                              | SA       |         |                  |                 |       |      | LNAPL Monitoring                                                 | Reduce LNAPL gauging to SA                                                                                                                |
| MW-12-07                              | A        |         |                  |                 |       |      | groundwater elevation monitoring                                 | Removed VOC Analysis / Has always been non-detect for VOCs                                                                                |
| MW-12-08                              | A        |         |                  |                 |       |      | groundwater elevation monitoring                                 | Reduce LNAPL gauging to SA                                                                                                                |
| MW-12-17                              | Abandon  |         |                  |                 |       |      |                                                                  | Consistent non-detects / do not need 4 wells in Area 1                                                                                    |
| P2-MW-02                              | A        |         |                  |                 |       |      | groundwater elevation monitoring                                 | Removed VOC Analysis / Consistently non-detect for VOCs                                                                                   |
| P2-MW-03                              | A        |         |                  |                 |       |      | groundwater elevation monitoring                                 |                                                                                                                                           |
| P2-SB-03                              | A        |         |                  |                 |       |      | groundwater elevation monitoring                                 | Removed VOC and 1,4-D Analysis / Consistently non-detect for VOCs and 1,4-D                                                               |
| P2-SB-06                              | A        |         |                  |                 |       |      | groundwater elevation monitoring                                 | Removed VOC and SVOC Analysis / Consistently non-detect for VOCs and SVOCs                                                                |
| MW-14-54                              | A        | B       |                  |                 |       |      | VOC monitoring, SVOC evaluation                                  | VOC change from A to B / Stable Trends. Removed SVOC Analysis / Consistent Non-Detects                                                    |
| MW-14-55                              | A        | B       |                  |                 |       |      | VOC monitoring                                                   | VOC change from A to B / Intermittent VOC detections are consistently below criteria                                                      |
| MW-14-57                              | A        |         | A                |                 |       |      | perched 1,4-dioxane monitoring                                   | Remove VOCs/ Intermittent VOC detections are consistently below criteria                                                                  |
| MW-14-58                              | SA       | B       | A                |                 |       | SA   | perched 1,4-dioxane monitoring, PFAS Monitoring                  | VOC Analysis changed to biennial / VOCs never detected 1,4-D Change from SA to A / Stable trend                                           |
| MW-14-59                              | SA       | B       | A                |                 | Qd    | SA   | perched 1,4-dioxane monitoring, SVOC monitoring, PFAS monitoring | VOC change from A to B / 1,1-DCE exceeds DW but has been stable for 5 years                                                               |
| MW-14-60                              | SA       | B       | A                |                 | Qd    | SA   | perched 1,4-dioxane monitoring, SVOC monitoring, PFAS monitoring | VOC change from A to B / VC exceeds DW but has been stable for 3 years                                                                    |
| MW-14-62                              | SA       | B       | A                |                 | Qd    | SA   | perched 1,4-dioxane monitoring, SVOC monitoring, PFAS Monitoring | VOC change from A to B / Intermittent VOC detections are consistently below criteria                                                      |
| Deep Overburden and Weathered Bedrock |          |         |                  |                 |       |      |                                                                  |                                                                                                                                           |
| MW-13-43                              | SA       |         | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     |                                                                                                                                           |
| MW-13-45                              | SA       |         | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     |                                                                                                                                           |
| MW-13-51                              | A        |         | A                |                 |       |      | lower 1,4-dioxane monitoring                                     | 1,4-D change from B to A / Increased Monitoring of Plume                                                                                  |
| MW-14-56                              | A        |         | A                |                 |       | SA   | lower 1,4-dioxane monitoring / PFAS monitoring                   | Removed VOC Analysis / Consistent Non-Detects Removed Metals Analysis / No exceedances 1,4-D Change from SA to A / APC plume / Added PFAS |
| MW-14-61                              | SA       | A       | SA               |                 | Qd    | SA   | lower 1,4-dioxane monitoring, VOC, SVOC & PFAS monitoring        | VOC change from SA to A / Single detections of 1,1,1-TCA and Chloroethane below criteria / Added SVOCs/PFAS                               |
| MW-14-63                              | A        |         | A                |                 |       |      | lower 1,4-dioxane monitoring                                     | Removed VOC Analysis / No VOC detections 1,4-D Change from SA to A / No detections                                                        |
| MW-15-72                              | SA       | A       | SA               |                 | Qd    | SA   | lower 1,4-dioxane monitoring/VOC, SVOC, PFAS monitoring          | Added SVOC / PFAS Analysis                                                                                                                |
| MW-15-73                              | A        |         | A                |                 |       |      | lower 1,4-dioxane monitoring                                     | Removed VOC Analysis / No VOC detections Removed Metals Analysis / No metal exceedances 1,4-D Change from SA to A / APC plume             |
| MW-16-74                              | SA       |         | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     | Removed VOC Analysis / No VOC detections                                                                                                  |
| MW-16-75                              | SA       |         | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     | Removed VOC Analysis / No VOC detections                                                                                                  |
| MW-16-76                              | A        |         | A                |                 |       |      | lower 1,4-dioxane monitoring                                     | Removed VOC Analysis / No VOC detections 1,4-D Change from SA to A / No 1,4-D exceedances                                                 |
| MW-16-77                              | SA       |         | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     | Removed VOC Analysis / No VOC detections 1,4-D Change from SA to A / No 1,4-D exceedances                                                 |
| MW-16-78                              | SA       |         | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     | Removed VOC Analysis / No VOC detections                                                                                                  |
| MW-16-79                              | SA       |         | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     | Removed VOC Analysis / No VOC detections                                                                                                  |
| MW-16-80                              | SA       |         | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     | Removed VOC Analysis / No VOC detections                                                                                                  |
| MW-16-81                              | SA       | A       | SA               |                 |       | SA   | lower 1,4-dioxane monitoring / PFAS monitoring                   | VOCs change from SA to A / No VOC detections 1,4-D Change from Q to SA/ >4 samples collected                                              |
| MW-16-82                              | SA       |         | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     | VOCs removed / No VOC detections 1,4-D Change from Q to SA / >4 samples collected                                                         |
| MW-16-83                              | A        |         | A                |                 |       |      | lower 1,4-dioxane monitoring                                     | Removed VOC Analysis / No VOC detections 1,4-D Change from SA to A / No 1,4-D detections                                                  |
| MW-16-84                              | SA       | A       | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     | VOCs change from SA to A / No VOC detections 1,4-D Change from Q to SA/ >4 samples collected                                              |
| MW-16-85                              | SA       | A       | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     | VOC change from SA to A / No VOC detections                                                                                               |
| MW-17-86                              | SA       | A       | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     | Well added / VOC to A                                                                                                                     |
| MW-19-115                             | SA       |         | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     | Well added                                                                                                                                |
| MW-19-116                             | SA       |         | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     | Well added                                                                                                                                |
| MW-19-117                             | SA       |         | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     | Well added                                                                                                                                |
| PW-14-01                              | SA       |         | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     |                                                                                                                                           |
| PW-14-02                              | SA       | B       | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     | VOC change from SA to B / No VOC detections                                                                                               |
| TW-14-02                              | SA       | B       | SA               |                 |       |      | lower 1,4-dioxane monitoring                                     | VOC change from SA to B / No VOC detections                                                                                               |
| Bedrock                               |          |         |                  |                 |       |      |                                                                  |                                                                                                                                           |
| MW-12-01                              | A        |         | A <sup>(1)</sup> |                 |       |      | bedrock 1,4-dioxane monitoring                                   | Removed VOC Analysis / No VOC detections 1,4-D Change from SA to A / No 1,4-D detections > DW                                             |
| MW-12-02                              | A        |         | A <sup>(1)</sup> |                 |       |      | bedrock 1,4-dioxane monitoring                                   | Removed VOC Analysis / No VOC detections 1,4-D Change from SA to A / No 1,4-D detections >DW                                              |
| MW-12-05R                             | A        |         | A <sup>(1)</sup> |                 |       |      | bedrock 1,4-dioxane monitoring                                   | Removed VOC Analysis / No VOC detections 1,4-D Change from SA to A / No 1,4-D detections >DW                                              |
| MW-13-44                              | A        |         | A <sup>(1)</sup> |                 |       |      | bedrock 1,4-dioxane monitoring                                   | Removed VOC Analysis / No VOC detections 1,4-D Change from SA to A / No 1,4-D detections >DW                                              |
| MW-12-06                              | A        |         | A <sup>(1)</sup> |                 |       |      | bedrock 1,4-dioxane monitoring                                   | Removed VOC Analysis / No VOC detections 1,4-D Change from SA to A / No 1,4-D detections                                                  |
| MW-17-87                              | A        |         | A <sup>(1)</sup> |                 |       |      | bedrock 1,4-dioxane monitoring                                   | Well added                                                                                                                                |
| MW-19-118S                            | A        |         | A <sup>(1)</sup> |                 |       |      | bedrock 1,4-dioxane monitoring                                   | New nested deep bedrock well / 1,4-Dioxane only                                                                                           |
| MW-19-118D                            | A        |         | A <sup>(1)</sup> |                 |       |      | bedrock 1,4-dioxane monitoring                                   | New nested deep bedrock well / 1,4-Dioxane only                                                                                           |
| MW-19-125                             | A        |         | A <sup>(1)</sup> |                 |       |      | bedrock 1,4-dioxane monitoring                                   | Proposed deep bedrock well / 1,4-Dioxane only                                                                                             |
| Lansing Township Wells                |          |         |                  |                 |       |      |                                                                  |                                                                                                                                           |
| TWP-03                                | -        |         | A <sup>(1)</sup> |                 |       |      | Municipal Well 1,4-dioxane monitoring                            |                                                                                                                                           |
| TWP-04                                | -        |         | A <sup>(1)</sup> |                 |       |      | Municipal Well 1,4-dioxane monitoring                            |                                                                                                                                           |
| TWP-05                                | -        |         | A <sup>(1)</sup> |                 |       |      | Municipal Well 1,4-dioxane monitoring                            |                                                                                                                                           |

Notes:

\* Site wide gauging to alternate between semi-annual events to account for seasonal variability. Semi-annual gauging includes all wells sampled semi-annually.

\*\* Select metals includes arsenic, nickel, lead, vanadium, chromium, and copper.

(1) = Analyzed for 1,4-dioxane via low-level USEPA Method 522

New wells will be added to the figures and incorporated into the annual monitoring once 4 samples are collected and a COC list is determined.

M = Monthly

Q = Quarterly

SA = Semi-annual

A = Annual

B = Biennial (starting 2nd quarter of 2020)

Qd = Quadrennial



| Well                                  | Gauging* | Analyte |                  |                 |                     |       |      | Primary Function                                           | Reason(s) for Change                                                                                                     |
|---------------------------------------|----------|---------|------------------|-----------------|---------------------|-------|------|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
|                                       |          | VOCs    | 1,4-Dioxane      | Select Metals** | Hexavalent Chromium | SVOCs | PFAS |                                                            |                                                                                                                          |
| Plant 3                               |          |         |                  |                 |                     |       |      |                                                            |                                                                                                                          |
| Perched                               |          |         |                  |                 |                     |       |      |                                                            |                                                                                                                          |
| CH-14-RO                              | SA       |         |                  | A               | A                   |       | SA   | metals monitoring, PFAS monitoring                         | Removed VOC Analysis / No VOC detections                                                                                 |
| MW-05(3)                              | A        | A       |                  |                 |                     |       |      | VOC monitoring                                             |                                                                                                                          |
| MW-06(3)                              | Abandon  |         |                  |                 |                     |       |      |                                                            | Removed VOC & SVOC Analysis / ND or Decreasing Trend / Abandon - Redundant                                               |
| UNK-09                                | Abandon  |         |                  |                 |                     |       |      |                                                            | Remove Gauging/Abandon - Redundant                                                                                       |
| UNK-10                                | A        | A       |                  |                 |                     |       |      | VOC monitoring                                             |                                                                                                                          |
| UNK-11                                | A        | A       |                  |                 |                     | Qd    |      | VOC monitoring, SVOC monitoring                            | Removed Metals Analysis / Stable to Decreasing Trend / Added SVOC Analysis                                               |
| MW-13-31                              | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           | Removed Metals & SVOCs/ Stable to Decreasing Trend /attributed to offsite                                                |
| MW-13-32                              | A        |         |                  | B               |                     | Qd    |      | groundwater elevation monitoring/ SVOC & Metals monitoring | Perimeter monitoring for metals and SVOCs                                                                                |
| MW-13-33                              | Abandon  |         |                  |                 |                     |       |      |                                                            | Removed Metals Analysis / Stable to Decreasing Trend / Abandon                                                           |
| LMW-12-09                             | SA       |         |                  |                 |                     |       |      | Reduce LNAPL gauging to SA                                 | LNAPL Gauging will Occur SA/ Max LNAPL Thickness Observed in 4 Quarters was 0.04 feet.                                   |
| LMW-12-10                             | SA       |         |                  |                 |                     |       |      | Reduce LNAPL gauging to SA                                 | LNAPL Gauging will Occur SA                                                                                              |
| LMW-12-11                             | SA       |         |                  |                 |                     |       |      | Reduce LNAPL gauging to SA                                 | LNAPL Gauging will Occur SA / No LNAPL Observed for 4 Quarters                                                           |
| UNK-13                                | SA       |         |                  |                 |                     |       |      | Reduce LNAPL gauging to SA                                 | Change LNAPL Gauging to SA                                                                                               |
| UNK-14                                | SA       |         |                  |                 |                     |       |      | Reduce LNAPL gauging to SA                                 | Change LNAPL Gauging to SA                                                                                               |
| MW-04(3)                              | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           |                                                                                                                          |
| MW-12-19                              | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           |                                                                                                                          |
| P3-SB-07                              | SA       |         |                  |                 |                     |       |      | groundwater elevation monitoring                           | Guaging used to evaluate bulkheading and PFAS area                                                                       |
| P3-SB-28                              | A        |         |                  |                 |                     | Qd    |      | groundwater elevation monitoring, SVOC monitoring          | Removed VOC Analysis / ND or Stable to Decreasing Trend                                                                  |
| MW-14-65                              | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           | Removed VOC and SVOC Analysis / ND                                                                                       |
| UNK-15                                | Q        |         |                  |                 |                     |       | Q    | PFAS monitoring                                            |                                                                                                                          |
| MW-18-88                              | Q        | A       |                  | A               | A                   |       | Q    | PFAS monitoring/ monitoring VOC & Metals                   | Well Added                                                                                                               |
| MW-18-89                              | Q        |         |                  |                 |                     |       | Q    | PFAS monitoring                                            | Well Added                                                                                                               |
| MW-18-90                              | Q        |         |                  |                 |                     |       | Q    | PFAS monitoring                                            | Well Added                                                                                                               |
| MW-18-91                              | Q        |         |                  |                 |                     |       | Q    | PFAS monitoring                                            | Well Added                                                                                                               |
| MW-18-92                              | SA       |         |                  |                 |                     |       | SA   | PFAS monitoring                                            | Well Added                                                                                                               |
| MW-18-95                              | Q        |         |                  |                 |                     |       | Q    | PFAS monitoring                                            | Well Added                                                                                                               |
| MW-18-96                              | SA       |         |                  |                 |                     |       | SA   | PFAS monitoring                                            | Well Added                                                                                                               |
| MW-18-98                              | Q        |         |                  |                 |                     |       | Q    | PFAS monitoring                                            | Well Added                                                                                                               |
| MW-18-99                              | Q        |         |                  |                 |                     |       | Q    | PFAS monitoring                                            | Well Added                                                                                                               |
| MW-18-100                             | SA       |         |                  |                 |                     |       | SA   | PFAS monitoring                                            | Well Added                                                                                                               |
| MW-18-102                             | SA       |         |                  |                 |                     |       | SA   | PFAS monitoring                                            | Well Added                                                                                                               |
| MW-18-103                             | Q        |         |                  |                 |                     |       | Q    | PFAS monitoring                                            | Well Added                                                                                                               |
| MW-18-104                             | SA       |         |                  |                 |                     |       | SA   | PFAS monitoring                                            | Well Added                                                                                                               |
| MW-18-105                             | Q        |         |                  |                 |                     |       | Q    | PFAS monitoring                                            | Well Added                                                                                                               |
| MW-18-106                             | SA       |         |                  |                 |                     |       | SA   | PFAS monitoring                                            | Well Added                                                                                                               |
| MW-19-107                             | SA       |         |                  |                 |                     |       | SA   | PFAS monitoring                                            | Well Added                                                                                                               |
| MW-19-108                             | SA       |         |                  |                 |                     |       | SA   | PFAS monitoring                                            | Well Added                                                                                                               |
| MW-19-110                             | SA       |         |                  |                 |                     |       | SA   | PFAS monitoring                                            | New perched monitoring well installed August 2019                                                                        |
| MW-19-111                             | SA       |         |                  |                 |                     |       | SA   | PFAS monitoring                                            | New perched monitoring well installed August 2019                                                                        |
| MW-19-112                             | SA       |         |                  |                 |                     |       | SA   | PFAS monitoring                                            | New perched monitoring well installed August 2019                                                                        |
| MW-19-113                             | SA       |         |                  |                 |                     |       | SA   | PFAS monitoring                                            | New perched monitoring well installed August 2019                                                                        |
| MW-19-114                             | SA       |         |                  |                 |                     |       | SA   | PFAS monitoring                                            | New perched monitoring well installed August 2019                                                                        |
| Deep Overburden and Weathered Bedrock |          |         |                  |                 |                     |       |      |                                                            |                                                                                                                          |
| MW-12-20                              | A        |         | B                |                 |                     |       |      | lower 1,4-dioxane monitoring                               | Removed VOC Analysis / Stable to Decreasing Trend                                                                        |
| MW-12-21                              | SA       | B       | SA               |                 |                     |       |      | lower 1,4-dioxane monitoring, VOC monitoring               | VOC Changed from A to B / Stable to Decreasing Trend<br>Removed Metals Analysis / Stable to Decreasing Trend             |
| MW-13-22                              | A        | B       | A                |                 |                     |       |      | lower 1,4-dioxane monitoring, VOC monitoring               | VOC Changed from A to B / Stable to Decreasing Trend<br>Removed Metals Analysis / Stable to Decreasing Trend             |
| MW-13-23                              | A        |         | A                |                 |                     |       |      | lower 1,4-dioxane monitoring                               |                                                                                                                          |
| MW-13-24                              | A        |         | A                |                 |                     |       |      | lower 1,4-dioxane monitoring                               |                                                                                                                          |
| MW-13-25                              | SA       |         | SA               |                 |                     |       |      | lower 1,4-dioxane monitoring                               | Removed VOC Analysis / Stable to Decreasing Trend                                                                        |
| MW-13-26                              | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           | Remove B 1,4-d / 6 yrs ND                                                                                                |
| MW-13-29                              | A        |         | A                |                 |                     |       |      | lower 1,4-dioxane monitoring                               |                                                                                                                          |
| MW-13-30                              | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           | Remove B 1,4-d / 6 yrs ND                                                                                                |
| MW-13-34                              | SA       | B       | SA               |                 |                     |       |      | lower 1,4-dioxane monitoring, VOC monitoring,              | VOC Changed from A to B / Stable to Decreasing Trend                                                                     |
| MW-13-40                              | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           | Removed 1,4-dioxane, added MW-18-97                                                                                      |
| MW-13-41                              | A        | B       |                  |                 |                     |       |      | VOC monitoring                                             | Added VOC Analysis<br>Removed Metals Analysis / Stable to Decreasing Trend                                               |
| MW-13-46                              | SA       |         | SA               |                 |                     |       |      | lower 1,4-dioxane monitoring                               | *Removed VOC Analysis / ND or Stable to Decreasing Trend                                                                 |
| MW-13-48                              | SA       | B       | SA               |                 |                     |       |      | lower 1,4-dioxane monitoring, VOC monitoring               | VOC Changed from A to B / Stable to Decreasing Trend                                                                     |
| MW-13-49                              | A        |         | A                |                 |                     |       |      | lower 1,4-dioxane                                          | *Removed VOC Analysis / ND or Stable to Decreasing Trend                                                                 |
| MW-19                                 | A        | B       | A                |                 |                     |       |      | lower 1,4-dioxane monitoring                               |                                                                                                                          |
| MW-22                                 | A        |         |                  |                 |                     |       |      | metals monitoring                                          | Removed VOC Analysis / ND or Stable to Decreasing Trend / Removed 1,4-D Analysis / Stable to Decreasing Trend            |
| MW-23                                 | SA       |         |                  |                 |                     |       | SA   | PFAS monitoring                                            | Removed VOC Analysis / ND or Stable to Decreasing Trend / Removed 1,4-D Analysis / Stable to Decreasing Trend / Add PFAS |
| MW-91-2 (abandoned) / MW-91-2R        | SA       |         | A                | A               | A                   |       | SA   | lower 1,4-dioxane, PFAS and metals monitoring              | Removed VOC Analysis / ND or Stable to Decreasing Trend<br>MW-91-2 abandoned and replaced in August 2019                 |
| MW-02-02(3)                           | A        |         | A                |                 |                     |       |      | lower 1,4-dioxane monitoring                               | Removed VOC Analysis / ND or Stable to Decreasing Trend / Removed Metals Analysis / Stable to Decreasing Trend           |
| MW-02-04(3)                           | SA       |         | A                | A               |                     |       | SA   | lower 1,4-dioxane, PFAS and metals monitoring              | Add PFAS                                                                                                                 |
| MW-02-01(3)                           | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           |                                                                                                                          |
| MW-02-03(3)                           | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           |                                                                                                                          |
| MW-04-03(3)                           | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           | Removed VOC Analysis / ND or Stable to Decreasing Trend/VC attributed to offsite                                         |
| MW-04-04(3)                           | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           | Removed VOC Analysis / ND or Stable to Decreasing Trend/VC attributed to offsite                                         |
| MW-13-27                              | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           |                                                                                                                          |
| MW-14-64                              | A        |         | A                |                 |                     |       |      | lower 1,4-dioxane monitoring                               | Removed VOC Analysis / ND or Stable to Decreasing Trend                                                                  |
| MW-15-71                              | A        |         | B                |                 |                     |       |      | lower 1,4-dioxane monitoring                               | 1,4-D Changed from A to B / Stable to Decreasing Trend                                                                   |
| PW-14-03                              | SA       |         | SA               |                 |                     |       |      | lower 1,4-dioxane monitoring                               | Remove VOCs / Stable to Decreasing Trend                                                                                 |
| MW-18-93                              | SA       |         |                  |                 |                     |       | SA   | Lower PFAS monitoring                                      | Well Added                                                                                                               |
| MW-18-94                              | SA       |         | A                |                 |                     |       | SA   | Lower PFAS, 1,4-Dioxane monitoring                         | Well Added                                                                                                               |
| MW-18-97                              | SA       |         | A                |                 |                     |       | SA   | Lower PFAS monitoring                                      | Well Added                                                                                                               |
| MW-18-101                             | SA       |         |                  |                 |                     |       | SA   | Lower PFAS monitoring                                      | Well Added                                                                                                               |
| MW-93-1                               | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           |                                                                                                                          |
| Bedrock                               |          |         |                  |                 |                     |       |      |                                                            |                                                                                                                          |
| MW-91-5                               | SA       |         | A <sup>(1)</sup> |                 |                     |       |      | bedrock monitoring                                         | Removed VOC Analysis / ND or Stable to Decreasing Trend / 1,4-D Changed from SA to A / ND or Stable to Decreasing Trend  |
| MW-91-6                               | SA       |         | A <sup>(1)</sup> |                 |                     |       |      | bedrock monitoring                                         | Removed VOC Analysis / ND or Stable to Decreasing Trend / 1,4-D Changed from SA to A / ND or Stable to Decreasing Trend  |
| MW-13-28                              | SA       |         | A <sup>(1)</sup> |                 |                     |       |      | bedrock monitoring                                         | Removed VOC Analysis / ND or Stable to Decreasing Trend / 1,4-D Changed from SA to A / ND or Stable to Decreasing Trend  |
| MW-13-38                              | A        |         | A <sup>(1)</sup> |                 |                     |       |      | bedrock monitoring                                         | Removed VOC Analysis / ND or Stable to Decreasing Trend / 1,4-D Changed from SA to A / ND or Stable to Decreasing Trend  |
| MW-13-39B                             | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           |                                                                                                                          |
| MW-13-47                              | SA       |         | A <sup>(1)</sup> |                 |                     |       |      | bedrock monitoring                                         | Removed VOC Analysis / Stable to Decreasing Trend<br>1,4-D Changed from SA to A / Stable to Decreasing Trend             |
| MW-04-01(3)                           | Abandon  |         |                  |                 |                     |       |      |                                                            | Anomalous elevation in bedrock / no used for contouring or sampling                                                      |
| MW-04-02(3)                           | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           | Removed VOC Analysis / ND or Stable to Decreasing Trend/VC attributed to offsite                                         |
| MW-12-04                              | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           |                                                                                                                          |
| MW-13-37                              | A        |         | A <sup>(1)</sup> |                 |                     |       |      | 1,4-D monitoring                                           | Added Annual 1,4-Dioxane                                                                                                 |
| MW-88-1                               | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           |                                                                                                                          |
| MW-91-3                               | A        |         |                  |                 |                     |       |      | bedrock monitoring                                         | Removed VOC Analysis / ND or Stable to Decreasing Trend/VC attributed to offsite                                         |
| MW-91-4                               | A        |         |                  |                 |                     |       |      | groundwater elevation monitoring                           | Removed VOC Analysis / Stable to Decreasing Trend                                                                        |
| MW-19-119S                            | A        |         | A <sup>(1)</sup> |                 |                     |       |      | bedrock monitoring                                         | New nested deep bedrock well / 1,4-Dioxane only                                                                          |
| MW-19-119D                            | A        |         | A <sup>(1)</sup> |                 |                     |       |      | bedrock monitoring                                         | New nested deep bedrock well / 1,4-Dioxane only                                                                          |

Notes:

\* Site wide gauging to alternate between semi-annual events to account for seasonal variability. Semi-annual gauging includes all wells sampled semi-annually.

\*\* Select metals includes arsenic, nickel, lead, vanadium, chromium, and copper.

(1) - Analyzed for 1,4-dioxane via low-level USEPA Method 522

Q = quarterly

SA = semi-annual

A = annual

B = biennial (starting 2nd quarter of 2020)

Qd = Quadrennial



| Well                                  | Gauging* | Analyte |             |                 |       |      | Primary Function                                | Reason(s) for Change                                                                                                                                              |
|---------------------------------------|----------|---------|-------------|-----------------|-------|------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                       |          | VOCs    | 1,4-Dioxane | Select Metals** | SVOCs | PFAS |                                                 |                                                                                                                                                                   |
| Plant 6                               |          |         |             |                 |       |      |                                                 |                                                                                                                                                                   |
| Perched                               |          |         |             |                 |       |      |                                                 |                                                                                                                                                                   |
| MW-02-03(6)                           | A        | B       | A           |                 | Qd    |      | perched 1,4-dioxane monitoring, SVOC monitoring | VOC Changed from A to B / Stable to Decreasing Trend                                                                                                              |
| MW-03-04                              | A        |         |             |                 |       |      | groundwater elevation monitoring                | Removed VOC, 1,4-d Analysis / Stable to Decreasing Trend                                                                                                          |
| MW-03-06                              | A        | B       | A           |                 |       |      | perched 1,4-dioxane monitoring                  | VOC Changed from A to B / Stable to Decreasing Trend<br>Removed Metals and SVOC Analysis / Stable to Decreasing Trend                                             |
| MW-03-08                              | A        | B       |             |                 |       |      | perched VOC monitoring                          | VOC Changed from A to B / removed 1,4-d /Stable to Decreasing Trend                                                                                               |
| MW-04-05(6)                           | A        |         |             |                 |       | A    | perched PFAS monitoring                         | Removed VOC, 1,4-d and Metals Analysis / Stable to Decreasing Trend                                                                                               |
| MW-12-11                              | A        |         |             |                 |       | A    | PFAS monitoring                                 | Removed Metals Analysis / Stable to Decreasing Trend /PFAS Stability                                                                                              |
| MW-12-12                              | Q        |         |             |                 |       | Q    | PFAS monitoring                                 | Removed Metals Analysis / Stable to Decreasing Trend /PFAS Stability                                                                                              |
| MW-12-13                              | Q        |         |             | A               |       | Q    | PFAS monitoring                                 | Metals Changed from SA to A / Stable to Decreasing Trend / PFAS Stability                                                                                         |
| MW-12-16                              | A        |         |             |                 |       |      | groundwater elevation monitoring                | Removed VOC Analysis / Stable to Decreasing Trend<br>Removed Metals / Stable to Decreasing Trend attributed to offsite                                            |
| MW-13-35                              | A        |         |             |                 |       |      | groundwater elevation monitoring                | Removed VOC Analysis / Stable to Decreasing Trend<br>Removed Metals / Stable to Decreasing Trend attributed to offsite/ Retain well for potential PFAS monitoring |
| MW-13-36R                             | Q        |         |             | A               |       | Q    | Metals and PFAS monitoring                      | Metals Changed from SA to A / Stable to Decreasing Trend / PFAS Stability                                                                                         |
| MWBP-10-UST1-4                        | Abandon  |         |             |                 |       |      |                                                 | Only used for groundwater elevation monitoring. High well density in Area 7                                                                                       |
| MWBP-10A-UST1-4                       | Abandon  |         |             |                 |       |      |                                                 | Only used for groundwater elevation monitoring. High well density in Area 8                                                                                       |
| MWBP-10-UST5-6                        | A        | B       |             | B               |       |      | VOCs/metal monitoring                           | VOC Changed from A to B / Stable to Decreasing Trends<br>Metals Changed from SA to B / Stable to Decreasing Trends                                                |
| MWBP-11-UST1-4                        | A        | B       |             | B               |       |      | VOCs/metal monitoring                           | VOC Changed from A to B / Stable to Decreasing Trends                                                                                                             |
| MWBP-12A-UST1-4                       | Abandon  |         |             |                 |       |      |                                                 | Consistently non detect for VOCs/stable metals. High well density in area 7.                                                                                      |
| MWBP-12-UST1-4                        | A        | B       |             | B               | Qd    |      | VOCs/metal monitoring, SVOC monitoring          | VOC Changed from A to B / Stable to Decreasing Trends                                                                                                             |
| P6-SB-18                              | A        |         |             |                 |       |      | groundwater elevation monitoring                |                                                                                                                                                                   |
| P6-SB-37                              | A        |         |             |                 |       |      | groundwater elevation monitoring                |                                                                                                                                                                   |
| MW-02-02(6)                           | Abandon  |         |             |                 |       |      |                                                 | Only used for groundwater elevation monitoring.                                                                                                                   |
| MW-03-02                              | A        |         |             |                 |       |      | groundwater elevation monitoring                | Removed Metals Analysis / Stable to Decreasing Trend                                                                                                              |
| MW-03-05                              | A        | B       | A           |                 |       |      | perched 1,4-dioxane monitoring, VOCs monitoring | VOC Changed from A to B / Stable to Decreasing Trend                                                                                                              |
| MW-12-10R                             | A        |         |             |                 |       |      | groundwater elevation monitoring                |                                                                                                                                                                   |
| MW-12-14                              | A        |         |             |                 |       |      | groundwater elevation monitoring                |                                                                                                                                                                   |
| MW-12-15                              |          |         |             |                 |       |      |                                                 | Removed VOC Analysis / Stable to Decreasing Trend<br>Removed Metals / Stable to Decreasing Trend attributed to offsite/ Retain well for potential PFAS monitoring |
| MWBP-12-UST5-6                        | Abandon  |         |             |                 |       |      |                                                 | Consistently non detect for VOCs/stable metals. High well density in area 7.                                                                                      |
| MWBP-13A-UST1-4                       | Abandon  |         |             |                 |       |      |                                                 | Consistently non detect for VOCs/stable metals. High well density in area 7.                                                                                      |
| P6-MW-01                              | A        |         |             |                 |       |      | groundwater elevation monitoring                |                                                                                                                                                                   |
| P6-SB-07                              | Q        |         |             |                 | Qd    | Q    | PFAS monitoring, SVOCs monitoring               | PFAS Stability                                                                                                                                                    |
| P6-SB-21                              | A        |         |             |                 |       |      | groundwater elevation monitoring                |                                                                                                                                                                   |
| P6-SB-35                              | A        |         |             |                 |       |      | groundwater elevation monitoring                |                                                                                                                                                                   |
| SME-MW-02                             | Abandon  |         |             |                 |       |      |                                                 | Only used for groundwater elevation monitoring.                                                                                                                   |
| MW-14-66                              | A        |         |             | B               |       |      | metals monitoring                               | Removed VOC Analysis / Stable to Decreasing Trend / Added PFAS                                                                                                    |
| MW-14-67                              | Q        |         |             | B               |       | Q    | metals monitoring, PFAS Monitoring              | Removed VOC Analysis / Stable to Decreasing Trend                                                                                                                 |
| MW-14-70                              | Q        |         |             |                 |       | Q    | PFAS monitoring                                 | PFAS Stability                                                                                                                                                    |
| MW-14-68                              | A        |         |             |                 |       |      | PFAS monitoring                                 | Dry Since Installation in 2014 / Continue to check Annually                                                                                                       |
| MW-14-69                              | A        |         |             |                 |       |      | PFAS monitoring                                 | Dry Since Installation in 2014 / Continue to check Annually                                                                                                       |
| Deep Overburden and Weathered Bedrock |          |         |             |                 |       |      |                                                 |                                                                                                                                                                   |
| MW-13-52                              | A        |         | A           |                 |       |      | lower 1,4-dioxane monitoring                    | Removed VOC Analysis / Stable to Decreasing Trend<br>1,4-D Changed from B to A                                                                                    |
| MW-13-53                              | A        |         | A           |                 |       |      | lower 1,4-dioxane monitoring                    | Removed VOC Analysis / Stable to Decreasing Trend<br>1,4-D Changed from B to A                                                                                    |
| Bedrock                               |          |         |             |                 |       |      |                                                 |                                                                                                                                                                   |
| MW-04-01(6)                           | A        |         | B           |                 |       |      | bedrock 1,4-dioxane monitoring                  | Removed VOC Analysis / Stable to Decreasing Trend                                                                                                                 |
| MW-04-04R                             | A        |         | B           |                 |       | A    | bedrock 1,4-dioxane monitoring, PFAS Monitoring | Removed VOC Analysis / Stable to Decreasing Trend                                                                                                                 |
| MW-04-06R                             | A        |         | B           |                 |       | A    | bedrock 1,4-dioxane monitoring, PFAS Monitoring | Removed VOC Analysis / Stable to Decreasing Trend                                                                                                                 |
| MW-12-03                              | A        |         |             |                 |       |      | groundwater elevation monitoring                |                                                                                                                                                                   |
| MW-13-50                              | A        |         | B           |                 |       |      | bedrock 1,4-dioxane monitoring                  | Removed VOC Analysis / Stable to Decreasing Trend                                                                                                                 |

\* Site wide gauging to alternate between semi-annual events to account for seasonal variability. Semi-annual gauging includes all wells sampled semi-annually.  
\*\* Select metals includes arsenic, nickel, lead, vanadium, chromium, and copper.  
Q = quarterly  
SA = semi-annual  
A = annual  
B = biennial (starting 2nd quarter of 2020)  
Qd = Quadrennial

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units      | AS-16-01<br>02/27/19<br>AS-16-01_022719 | AS-16-01<br>04/08/19<br>AS-16-01_040819 | AS-16-02<br>02/28/19<br>AS-16-02_022819 | AS-16-02<br>04/08/19<br>AS-16-02_040819 | CH-14-RO<br>06/12/19<br>CH-14-RO_061219 | CH-14-RO<br>12/06/19<br>CH-14-RO_120619 | MW-01(2)<br>06/05/19<br>MW-01(2)_060519 | MW-02-02(3)<br>06/11/19<br>MW-02-02(3)_061119 | MW-02-03(6)<br>06/10/19<br>MW-02-03(6)_061019 | MW-02-04(3)<br>06/11/19<br>MW-02-04(3)_061119 | MW-02-04(3)<br>12/06/19<br>MW-02-04(3)_120619 | MW-03-04<br>06/10/19<br>MW-03-04_061019 | MW-03-05<br>06/10/19<br>MW-03-05_061019 | MW-03-06<br>06/10/19<br>MW-03-06_061019 |
|-------------------------------------------------|----------------------------|-------------------------|------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Field                                           |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                               |                                               |                                               |                                               |                                         |                                         |                                         |
| Conductivity                                    | --                         | --                      | mS/cm      | 1.47                                    | 1.655                                   | 2.51                                    | 2.702                                   | 0.75                                    | 0.79                                    | 4.38                                    | 5.24                                          | 9.47                                          | 5.52                                          | 5.21                                          | 0.76                                    | 2.91                                    | 10.96                                   |
| Dissolved oxygen (DO), field                    | --                         | --                      | mg/L       | 12.63                                   | 11.33                                   | 6.77                                    | 8.71                                    | 0.15                                    | 0.17                                    | 0.14                                    | 0.99                                          | 0.52                                          | 0.51                                          | 3.22                                          | 0.37                                    | 0.27                                    | 0.23                                    |
| Oxidation reduction potential (ORP), field      | --                         | --                      | millivolts | 55.1                                    | 69.9                                    | 88.8                                    | 116.1                                   | 181                                     | 73                                      | 21.1                                    | 14.4                                          | -74.1                                         | -53.7                                         | -36.1                                         | 150.3                                   | -125.5                                  | -61.5                                   |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0              | s.u.       | 8.36                                    | 7.54                                    | 6.55                                    | 6.68                                    | 7.13                                    | 7.15                                    | 6.95                                    | 6.47                                          | 6.75                                          | 6.78                                          | 6.85                                          | 6.99                                    | 7.58                                    | 6.79                                    |
| Temperature, field                              | --                         | --                      | Deg C      | 11.1                                    | 16.7                                    | 8.5                                     | 14.7                                    | 16                                      | 11.2                                    | 14.1                                    | 14                                            | 16.2                                          | 15                                            | 11.9                                          | 15.1                                    | 15.1                                    | 14.1                                    |
| Turbidity (field)                               | --                         | --                      | NTU        | 9.64                                    | 70                                      | 23.7                                    | 193                                     | 1.61                                    | 0.02                                    | 0.02                                    | 2.39                                          | 36.1                                          | 1.44                                          | 2.3                                           | 6.59                                    | 6.67                                    | 9.05                                    |
| Volatile Organics (via EPA Method 537 Modified) |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                               |                                               |                                               |                                               |                                         |                                         |                                         |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trichlorobenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trichloropropane                          | 42                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trimethylbenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Acrylonitrile                                   | 2.6                        | 2                       | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <2                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Bromobenzene                                    | 18                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Chlorobromomethane                              | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Cymene (p-Isopropyltoluene)                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Dibromomethane                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Ethyl ether                                     | 10                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Iodomethane                                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| N-Butylbenzene                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| N-Propylbenzene                                 | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| tert-Butylbenzene                               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Tetrahydrofuran                                 | 95                         | 11,000                  | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <90                                     | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| trans-1,4-Dichloro-2-butene                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| 1,2-Dichlorobenzene                             | 600                        | 13                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| 1,4-Dichlorobenzene                             | 75                         | 17                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| 1,4-Dioxane                                     | 7.2                        | 280                     | µg/L       | 45                                      | 130                                     | 3                                       | 4                                       | NA                                      | NA                                      | NA                                      | <1 <1]                                        | 18                                            | 2                                             | NA                                            | 6                                       | <1                                      | 6                                       |
| 1,1,1-Trichloroethane                           | 200                        | 89                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| 2-Hexanone                                      | 1,000                      | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <50                                     | NA                                            | <10                                           | NA                                            | NA                                            | NA                                      | <10                                     | <10                                     |
| 1,1,2,2-Tetrachloroethane                       | 8.5                        | 78                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Acetone                                         | 730                        | 1,700                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <50                                     | NA                                            | <10                                           | NA                                            | NA                                            | NA                                      | <10                                     | <10                                     |
| 1,1,2-Trichloroethane                           | 5                          | 330                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Bromodichloromethane                            | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| 1,1-Dichloroethane                              | 880                        | 740                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Bromoform                                       | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| 1,1-Dichloroethene                              | 7                          | 130                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Bromomethane (Methyl bromide)                   | 10                         | 5                       | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| 1,2-Dichloroethane                              | 5                          | 360                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Carbon disulfide                                | 800                        | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Carbon tetrachloride                            | 5                          | 38                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| cis-1,2-Dichloroethene                          | 70                         | 620                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Chlorobenzene                                   | 100                        | 25                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Chloroform (Trichloromethane)                   | 80                         | 350                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Trichloroethene                                 | 5                          | 200                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Chloromethane (Methyl chloride)                 | 260                        | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Tetrachloroethene                               | 5                          | 60                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| cis-1,3-Dichloropropene                         | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Vinyl chloride                                  | 2                          | 13                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | 3                                             | NA                                            | NA                                            | NA                                      | <1                                      | 12                                      |
| 2-Methylnaphthalene                             | 260                        | 19                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Chloroethane                                    | 430                        | 1,100                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Benzene                                         | 5                          | 200                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Methyl acetate                                  | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | <10                                           | NA                                            | NA                                            | NA                                      | <10                                     | <10                                     |
| Ethylbenzene                                    | 74                         | 18                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Methylene chloride                              | 5                          | 1,500                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Styrene                                         | 100                        | 80                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Toluene                                         | 790                        | 270                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| trans-1,3-Dichloropropene                       | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 15                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Naphthalene                                     | 520                        | 11                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Trifluorotrichloroethane (Freon 113)            | 170,000                    | 32                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <25                                     | NA                                            | <10                                           | NA                                            | NA                                            | NA                                      | <10                                     | <10                                     |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <50                                     | NA                                            | <10                                           | NA                                            | NA                                            | NA                                      | <10                                     | <10                                     |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |

See notes on last page.



Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name:                                                | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units | AS-16-01<br>02/27/19<br>AS-16-01_022719 | AS-16-01<br>04/08/19<br>AS-16-01_040819 | AS-16-02<br>02/28/19<br>AS-16-02_022819 | AS-16-02<br>04/08/19<br>AS-16-02_040819 | CH-14-RO<br>06/12/19<br>CH-14-RO_061219 | CH-14-RO<br>12/06/19<br>CH-14-RO_120619 | MW-01(2)<br>06/05/19<br>MW-01(2)_060519 | MW-02-02(3)<br>06/11/19<br>MW-02-02(3)_061119 | MW-02-03(6)<br>06/10/19<br>MW-02-03(6)_061019 | MW-02-04(3)<br>06/11/19<br>MW-02-04(3)_061119 | MW-02-04(3)<br>12/06/19<br>MW-02-04(3)_120619 | MW-03-04<br>06/10/19<br>MW-03-04_061019 | MW-03-05<br>06/10/19<br>MW-03-05_061019 | MW-03-06<br>06/10/19<br>MW-03-06_061019 |
|------------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                                |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                               |                                               |                                               |                                               |                                         |                                         |                                         |
| 1,2-Dichloropropane                                                                            | 5                          | 230                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| 1,3-Dichlorobenzene                                                                            | 6.6                        | 28                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Cyclohexane                                                                                    | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Methyl cyclohexane                                                                             | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Dibromochloromethane                                                                           | 80                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| Isopropyl benzene                                                                              | 800                        | 28                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| o-Xylene                                                                                       | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                            | <1                                            | NA                                            | NA                                            | NA                                      | <1                                      | <1                                      |
| m&p-Xylene                                                                                     | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <2                                      | NA                                            | <2                                            | NA                                            | NA                                            | NA                                      | <2                                      | <2                                      |
| Total Xylenes                                                                                  | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <2                                      | NA                                            | <2                                            | NA                                            | NA                                            | NA                                      | <2                                      | <2                                      |
| Hexachloroethane                                                                               | 7.3                        | 6.7                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted by *) |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                               |                                               |                                               |                                               |                                         |                                         |                                         |
| 1,4-Dioxane                                                                                    | 7.2                        | 280                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Inorganics (via EPA Method 537 Modified)                                                       |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                               |                                               |                                               |                                               |                                         |                                         |                                         |
| Antimony                                                                                       | 0.006                      | 0.13                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Arsenic                                                                                        | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | <0.002                                  | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Barium                                                                                         | 2                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Boron                                                                                          | 0.5                        | 7.2                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Cadmium                                                                                        | 0.005                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Chromium III                                                                                   | 0.1                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | 8.69                                    | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Chromium VI (hexavalent)                                                                       | 0.1                        | 0.011                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | 8.80                                    | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Cobalt                                                                                         | 0.04                       | 0.1                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Copper                                                                                         | 1                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | <0.005                                  | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Lead                                                                                           | 0.004                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | <0.003                                  | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Manganese                                                                                      | 0.05                       | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Mercury                                                                                        | 0.002                      | 0.0000013               | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Nickel                                                                                         | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | 0.012                                   | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Selenium                                                                                       | 0.05                       | 0.005                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Silver                                                                                         | 0.034                      | 0.0002                  | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Vanadium                                                                                       | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | <0.005                                  | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Zinc                                                                                           | 2.4                        | 0.26                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Inorganics-Filtered (via EPA Method 537 Modified)                                              |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                               |                                               |                                               |                                               |                                         |                                         |                                         |
| Arsenic (dissolved)                                                                            | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Chromium (dissolved)                                                                           | --                         | 0.16                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Copper (dissolved)                                                                             | 1                          | 0.02                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Lead (dissolved)                                                                               | 0.004                      | 0.044                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Nickel (dissolved)                                                                             | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Vanadium (dissolved)                                                                           | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| General Chemistry (via EPA Method 537 Modified)                                                |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                               |                                               |                                               |                                               |                                         |                                         |                                         |
| Nitrate (as N)                                                                                 | 10                         | --                      | mg/L  | 17.8                                    | NA                                      | 83.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Phosphorus                                                                                     | 63                         | --                      | mg/L  | 5                                       | NA                                      | 19                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Sulfate                                                                                        | 250                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Total dissolved solids (TDS)                                                                   | 500                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| Total kjeldahl nitrogen (TKN)                                                                  | --                         | --                      | mg/L  | 1.8                                     | NA                                      | 4.4                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                            | NA                                            | NA                                            | NA                                            | NA                                      | NA                                      | NA                                      |
| PFAS (via EPA Method 537 Modified)                                                             |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                               |                                               |                                               |                                               |                                         |                                         |                                         |
| 4:2 FTS                                                                                        | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <8                                      | <8                                      | NA                                      | NA                                            | NA                                            | NA                                            | <8                                            | <8                                      | NA                                      | NA                                      |
| 6:2 FTS                                                                                        | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <8                                      | <80                                     | NA                                      | NA                                            | NA                                            | NA                                            | <8                                            | <8                                      | NA                                      | NA                                      |
| 8:2 FTS                                                                                        | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <8                                      | <8                                      | NA                                      | NA                                            | NA                                            | NA                                            | <8                                            | <8                                      | NA                                      | NA                                      |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                                 | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <20                                     | <20                                     | NA                                      | NA                                            | NA                                            | <20                                           | <20                                           | <20                                     | NA                                      | NA                                      |
| N-methyl perfluorooctane sulfonamidoacetic acid                                                | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <20                                     | <20                                     | NA                                      | NA                                            | NA                                            | <20                                           | <20                                           | <20                                     | NA                                      | NA                                      |
| Perfluorobutanesulfonic acid (PFBS)                                                            | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | 181                                     | 123                                     | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Perfluorobutanoic acid (PFBA)                                                                  | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | 27.8                                    | 22.7                                    | NA                                      | NA                                            | 4.57 J                                        | 6.61 J                                        | 6.61 J                                        | 6.61 J                                  | NA                                      | NA                                      |
| Perfluorodecanesulfonic acid (PFDS)                                                            | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4                                      | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Perfluorodecanoic acid (PFDA)                                                                  | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4                                      | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Perfluorododecanoic acid (PFDoA)                                                               | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4                                      | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                          | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 354                                     | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Perfluoroheptanoic acid (PFHpA)                                                                | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | 40                                      | 38                                      | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Perfluorohexanesulfonic acid (PFHxS)                                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | 2,020                                   | 1,680                                   | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Perfluorohexanoic acid (PFHxA)                                                                 | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | 53.7                                    | 45.7                                    | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Perfluorononanesulfonic acid (PFNS)                                                            | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4                                      | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Perfluorononanoic acid (PFNA)                                                                  | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | 1.01 J                                  | <4                                      | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Perfluorooctane Sulfonamide (FOSA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4                                      | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Perfluorooctane sulfonic acid (PFOS)                                                           | 70                         | 12                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | 12,100                                  | 11,900                                  | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Perfluorooctanoic acid (PFOA)                                                                  | 70                         | 12,000                  | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | 80.3                                    | 116                                     | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Perfluoropentanesulfonic acid (PFPeS)                                                          | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | 313                                     | 267                                     | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Perfluoropentanoic acid (PFPeA)                                                                | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | 19.2                                    | 17.9                                    | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Perfluorotetradecanoic acid (PFTeA)                                                            | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4                                      | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Perfluorotridecanoic Acid (PFTriA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4                                      | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Perfluoroundecanoic acid (PFUnA)                                                               | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4                                      | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |
| Total PFAS (excluding PFOS and PFOA)                                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | 2,655.71                                | 2,548.30                                | NA                                      | NA                                            | NA                                            | 4.57 J                                        | 6.61 J                                        | 6.61 J                                  | NA                                      | NA                                      |
| Combined PFOS and PFOA                                                                         | 70                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | 12,180.30                               | 12,016                                  | NA                                      | NA                                            | NA                                            | <4                                            | <4                                            | <4                                      | NA                                      | NA                                      |

See notes on last page.



Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units      | MW-04-04R<br>06/06/19<br>MW-04-04R_060619 | MW-04-05(6)<br>06/12/19<br>MW-04-05(6)_061219 | MW-04-06R<br>06/06/19<br>MW-04-06R_060619 | MW-05(3)<br>06/12/19<br>MW-05(3)_061219 | MW-06(3)<br>06/12/19<br>MW-06(3)_061219 | MW-12-01<br>06/13/19<br>MW-12-01_061319 | MW-12-02<br>06/12/19<br>MW-12-02_061219 | MW-12-05R<br>06/10/19<br>MW-12-05R_061019 | MW-12-06<br>06/04/19<br>MW-12-06_060419 | MW-12-09<br>06/07/19<br>MW-12-09_060719 | MW-12-09<br>12/04/19<br>MW-12-09_120419 | MW-12-11<br>06/12/19<br>MW-12-11_061219 | MW-12-12<br>06/12/19<br>MW-12-12_061219 | MW-12-12<br>08/27/19<br>MW-12-12_20190827 |
|-------------------------------------------------|----------------------------|-------------------------|------------|-------------------------------------------|-----------------------------------------------|-------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|
| Field                                           |                            |                         |            |                                           |                                               |                                           |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                           |
| Conductivity                                    | --                         | --                      | mS/cm      | 1.56                                      | 5.48                                          | 5.42                                      | 0.84                                    | 0.362                                   | 2.09                                    | 1.21                                    | 2.03                                      | 0.9                                     | NA                                      | 2.3                                     | 0.591                                   | 0.573                                   | NA                                        |
| Dissolved oxygen (DO), field                    | --                         | --                      | mg/L       | 8.15                                      | 0.41                                          | 0.28                                      | 0.38                                    | 2.05                                    | 1.43                                    | 0.52                                    | 0.04                                      | 0.23                                    | NA                                      | 0.13                                    | 2.45                                    | 0.68                                    | NA                                        |
| Oxidation reduction potential (ORP), field      | --                         | --                      | millivolts | -63.3                                     | -141.1                                        | -227.2                                    | 142.5                                   | 167.8                                   | -41.6                                   | -64.5                                   | -238.2                                    | 112.2                                   | NA                                      | -31.2                                   | 127.5                                   | 3.5                                     | NA                                        |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0              | s.u.       | 6.89                                      | 7.12                                          | 7.24                                      | 7.41                                    | 7.53                                    | 7.11                                    | 6.92                                    | 7.52                                      | 7.19                                    | NA                                      | 6.85                                    | 6.82                                    | 7.61                                    | NA                                        |
| Temperature, field                              | --                         | --                      | Deg C      | 14.8                                      | 13.8                                          | 14.7                                      | 15                                      | 16.9                                    | 13.2                                    | 19.2                                    | 15.4                                      | 17.6                                    | NA                                      | 13                                      | 12.9                                    | 13.7                                    | NA                                        |
| Turbidity (field)                               | --                         | --                      | NTU        | 70.1                                      | 2.96                                          | 9.05                                      | 1.75                                    | 1.32                                    | 23.9                                    | 11.3                                    | 0.02                                      | 0.23                                    | NA                                      | 0.02                                    | 5.2                                     | 6.07                                    | NA                                        |
| Volatile Organics (via EPA Method 537 Modified) |                            |                         |            |                                           |                                               |                                           |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                           |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2,3-Trichlorobenzene                          | --                         | --                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2,3-Trichloropropane                          | 42                         | --                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2,3-Trimethylbenzene                          | --                         | --                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Acrylonitrile                                   | 2.6                        | 2                       | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Bromobenzene                                    | 18                         | --                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Chlorobromomethane                              | --                         | --                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Cymene (p-Isopropyltoluene)                     | --                         | --                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Dibromomethane                                  | 80                         | --                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Ethyl ether                                     | 10                         | --                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Iodomethane                                     | --                         | --                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| N-Butylbenzene                                  | 80                         | --                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| N-Propylbenzene                                 | 80                         | --                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| tert-Butylbenzene                               | 80                         | --                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Tetrahydrofuran                                 | 95                         | 11,000                  | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| trans-1,4-Dichloro-2-butene                     | --                         | --                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                     | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2-Dichlorobenzene                             | 600                        | 13                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,4-Dichlorobenzene                             | 75                         | 17                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,4-Dioxane                                     | 7.2                        | 280                     | µg/L       | NA                                        | 3                                             | NA                                        | NA                                      | NA                                      | <1                                      | <1                                      | <1                                        | 1                                       | 2                                       | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,1,1-Trichloroethane                           | 200                        | 89                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | 5                                       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 2-Hexanone                                      | 1,000                      | --                      | µg/L       | NA                                        | <10                                           | NA                                        | <10 [<10]                               | <10                                     | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,1,2,2-Tetrachloroethane                       | 8.5                        | 78                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Acetone                                         | 730                        | 1,700                   | µg/L       | NA                                        | <10                                           | NA                                        | <10 [26]                                | <10                                     | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,1,2-Trichloroethane                           | 5                          | 330                     | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Bromodichloromethane                            | 80                         | --                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,1-Dichloroethane                              | 880                        | 740                     | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Bromoform                                       | 80                         | --                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,1-Dichloroethene                              | 7                          | 130                     | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Bromomethane (Methyl bromide)                   | 10                         | 5                       | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2-Dichloroethane                              | 5                          | 360                     | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Carbon disulfide                                | 800                        | --                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Carbon tetrachloride                            | 5                          | 38                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| cis-1,2-Dichloroethene                          | 70                         | 620                     | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Chlorobenzene                                   | 100                        | 25                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                   | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Chloroform (Trichloromethane)                   | 80                         | 350                     | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Trichloroethene                                 | 5                          | 200                     | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Chloromethane (Methyl chloride)                 | 260                        | --                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Tetrachloroethene                               | 5                          | 60                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| cis-1,3-Dichloropropene                         | --                         | --                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Vinyl chloride                                  | 2                          | 13                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 2-Methylnaphthalene                             | 260                        | 19                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Chloroethane                                    | 430                        | 1,100                   | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Benzene                                         | 5                          | 200                     | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Methyl acetate                                  | --                         | --                      | µg/L       | NA                                        | <10                                           | NA                                        | <10 [<10]                               | <10                                     | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Ethylbenzene                                    | 74                         | 18                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Methylene chloride                              | 5                          | 1,500                   | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Styrene                                         | 100                        | 80                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Toluene                                         | 790                        | 270                     | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| trans-1,3-Dichloropropene                       | --                         | --                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                   | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Naphthalene                                     | 520                        | 11                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Trifluorotrichloroethane (Freon 113)            | 170,000                    | 32                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                   | µg/L       | NA                                        | <10                                           | NA                                        | <10 [<10]                               | <10                                     | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                      | µg/L       | NA                                        | <10                                           | NA                                        | <10 [<10]                               | <10                                     | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                      | µg/L       | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                      | µg/L       | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units | MW-04-04R<br>06/06/19<br>MW-04-04R_060619 | MW-04-05(6)<br>06/12/19<br>MW-04-05(6)_061219 | MW-04-06R<br>06/06/19<br>MW-04-06R_060619 | MW-05(3)<br>06/12/19<br>MW-05(3)_061219 | MW-06(3)<br>06/12/19<br>MW-06(3)_061219 | MW-12-01<br>06/13/19<br>MW-12-01_061319 | MW-12-02<br>06/12/19<br>MW-12-02_061219 | MW-12-05R<br>06/10/19<br>MW-12-05R_061019 | MW-12-06<br>06/04/19<br>MW-12-06_060419 | MW-12-09<br>06/07/19<br>MW-12-09_060719 | MW-12-09<br>12/04/19<br>MW-12-09_120419 | MW-12-11<br>06/12/19<br>MW-12-11_061219 | MW-12-12<br>06/12/19<br>MW-12-12_061219 | MW-12-12<br>08/27/19<br>MW-12-12_20190827 |
|-------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------|-------------------------------------------|-----------------------------------------------|-------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                         |       |                                           |                                               |                                           |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                           |
| 1,2-Dichloropropane                                                                       | 5                          | 230                     | µg/L  | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                      | µg/L  | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Cyclohexane                                                                               | --                         | --                      | µg/L  | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Methyl cyclohexane                                                                        | --                         | --                      | µg/L  | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Dibromochloromethane                                                                      | 80                         | --                      | µg/L  | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Isopropyl benzene                                                                         | 800                        | 28                      | µg/L  | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| o-Xylene                                                                                  | --                         | --                      | µg/L  | NA                                        | <1                                            | NA                                        | <1 [<1]                                 | <1                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| m&p-Xylene                                                                                | --                         | --                      | µg/L  | NA                                        | <2                                            | NA                                        | <2 [<2]                                 | <2                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Total Xylenes                                                                             | --                         | --                      | µg/L  | NA                                        | <2                                            | NA                                        | <2 [<2]                                 | <2                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Hexachloroethane                                                                          | 7.3                        | 6.7                     | µg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                         |       |                                           |                                               |                                           |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                           |
| 1,4-Dioxane                                                                               | 7.2                        | 280                     | µg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                         |       |                                           |                                               |                                           |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                           |
| Antimony                                                                                  | 0.006                      | 0.13                    | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Arsenic                                                                                   | 0.01                       | 0.01                    | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | 0.006                                   | <0.002                                  | NA                                        |
| Barium                                                                                    | 2                          | --                      | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Boron                                                                                     | 0.5                        | 7.2                     | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Cadmium                                                                                   | 0.005                      | --                      | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Chromium III                                                                              | 0.1                        | --                      | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | <0.005                                  | 0.011                                   | NA                                        |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                   | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Cobalt                                                                                    | 0.04                       | 0.1                     | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Copper                                                                                    | 1                          | --                      | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | <0.005                                  | <0.005                                  | NA                                        |
| Lead                                                                                      | 0.004                      | --                      | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | <0.003                                  | <0.003                                  | NA                                        |
| Manganese                                                                                 | 0.05                       | --                      | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Mercury                                                                                   | 0.002                      | 0.0000013               | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Nickel                                                                                    | 0.1                        | 0.12                    | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | 0.006                                   | 0.007                                   | NA                                        |
| Selenium                                                                                  | 0.05                       | 0.005                   | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Silver                                                                                    | 0.034                      | 0.0002                  | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Vanadium                                                                                  | 0.0045                     | 0.027                   | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | <0.005                                  | <0.005                                  | NA                                        |
| Zinc                                                                                      | 2.4                        | 0.26                    | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                         |       |                                           |                                               |                                           |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                           |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                    | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Chromium (dissolved)                                                                      | --                         | 0.16                    | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Copper (dissolved)                                                                        | 1                          | 0.02                    | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                   | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                    | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                   | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                         |       |                                           |                                               |                                           |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                           |
| Nitrate (as N)                                                                            | 10                         | --                      | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Phosphorus                                                                                | 63                         | --                      | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Sulfate                                                                                   | 250                        | --                      | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Total dissolved solids (TDS)                                                              | 500                        | --                      | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                      | mg/L  | NA                                        | NA                                            | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                         |       |                                           |                                               |                                           |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                           |
| 4:2 FTS                                                                                   | --                         | --                      | ng/L  | <8                                        | <8                                            | <8                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | <8                                      | <8                                      | <8                                      | <8                                      | <7.4                                      |
| 6:2 FTS                                                                                   | --                         | --                      | ng/L  | <8                                        | <8                                            | <8                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | <8                                      | <8                                      | <8                                      | <8                                      | <7.4                                      |
| 8:2 FTS                                                                                   | --                         | --                      | ng/L  | <8                                        | <8                                            | <8                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | <8                                      | <8                                      | <8                                      | <8                                      | <7.4                                      |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                      | ng/L  | <20                                       | <20                                           | <20                                       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | <20                                     | <20                                     | <20                                     | <20                                     | <19                                       |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                      | ng/L  | <20                                       | <20                                           | <20                                       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | <20                                     | <20                                     | <20                                     | <20                                     | <19                                       |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                      | ng/L  | <4                                        | 1.81 J                                        | <4                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | 2.45 J                                  | 1.74 J                                  | <4                                      | 1.71 J                                  | <3.7                                      |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                      | ng/L  | <8                                        | 27.8                                          | 2.81 J                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | 9.32                                    | 6.57 J                                  | 10.2                                    | 42.9                                    | 38.9                                      |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                      | ng/L  | <4                                        | <4                                            | <4                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | <4                                      | <4                                      | <4                                      | <4                                      | <3.7                                      |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                      | ng/L  | <4                                        | <4                                            | <4                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | <4                                      | <4                                      | <4                                      | 10.3                                    | 11.9                                      |
| Perfluorododecanoic acid (PFDoA)                                                          | --                         | --                      | ng/L  | <4                                        | <4                                            | <4                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | <4                                      | <4                                      | <4                                      | <4                                      | <3.7                                      |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                     | --                         | --                      | ng/L  | <4                                        | <4                                            | <4                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | <4                                      | <4                                      | <4                                      | <4                                      | <3.7                                      |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                      | ng/L  | <4                                        | 29.3                                          | <4                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | 5.64                                    | 4.25                                    | 1.14 J                                  | 41.2                                    | 55.2                                      |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                      | ng/L  | <4                                        | <4                                            | <4                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | 2.74 J                                  | 2.32 J                                  | <4                                      | 1.86 J                                  | 1.53 J                                    |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                      | ng/L  | <4                                        | 53.6                                          | 1.15 J                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | 5.95                                    | 4.49                                    | 1.25 J                                  | 87                                      | 104                                       |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                      | ng/L  | <4                                        | <4                                            | <4                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | <4                                      | <4                                      | <4                                      | <4                                      | <3.7                                      |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                      | ng/L  | <4                                        | <4                                            | <4                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | <4                                      | <4                                      | <4                                      | <4                                      | 12                                        |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                      | ng/L  | <4                                        | <4                                            | <4                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | <4                                      | <4                                      | <4                                      | <4                                      | <3.7                                      |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                      | ng/L  | <4                                        | <4                                            | <4                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | <4                                      | <4                                      | <4                                      | 48.8                                    | 57.4                                      |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                  | ng/L  | <4                                        | 22.4                                          | <4                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | 14.8                                    | 11.9                                    | 1.54 J                                  | 78.5                                    | 100                                       |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                      | ng/L  | <4                                        | 1.11 J                                        | <4                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | 1 J                                     | <4                                      | <4                                      | <4                                      | <3.7                                      |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                      | ng/L  | <4                                        | 56                                            | 2.06 J                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | 4.25                                    | 3.34 J                                  | 2.4 J                                   | 83.7                                    | 101                                       |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                      | ng/L  | <4                                        | <4                                            | <4                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | <4                                      | <4                                      | <4                                      | <4                                      | <3.7                                      |
| Perfluorotridecanoic acid (PFTriA)                                                        | --                         | --                      | ng/L  | <4                                        | <4                                            | <4                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | <4                                      | <4                                      | <4                                      | <4                                      | <3.7                                      |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                      | ng/L  | <4                                        | <4                                            | <4                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | <4                                      | <4                                      | <4                                      | <4                                      | <3.7                                      |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                      | ng/L  | <20                                       | 169.62 J                                      | 6.02 J                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | 31.35 J                                 | 22.71 J                                 | 14.99 J                                 | 280.67 J                                | 325.13 J                                  |
| Combined PFOS and PFOA                                                                    | 70                         | --                      | ng/L  | <4                                        | 22.4                                          | <4                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | 14.8                                    | 11.9                                    | 1.54 J                                  | 127.3                                   | 157.4                                     |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units      | MW-12-12<br>12/03/19<br>MW-12-12_120319 | MW-12-13<br>06/12/19<br>MW-12-13_061219 | MW-12-13<br>08/27/19<br>MW-12-13_20190827 | MW-12-13<br>12/03/19<br>MW-12-13_120319 | MW-12-16<br>06/10/19<br>MW-12-16_061019 | MW-12-18<br>06/07/19<br>MW-12-18_060719 | MW-12-18<br>12/05/19<br>MW-12-18_120519 | MW-12-21<br>06/05/19<br>MW-12-21_060519 | MW-12-21<br>12/06/19<br>MW-12-21_120619 | MW-13-22<br>06/06/19<br>MW-13-22_060619 | MW-13-22<br>08/27/19<br>MW-13-22_082719 | MW-13-22<br>12/05/19<br>MW-13-22_120519 | MW-13-23<br>06/05/19<br>MW-13-23_060519 | MW-13-24<br>06/06/19<br>MW-13-24_060619 |
|-------------------------------------------------|----------------------------|-------------------------|------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Field                                           |                            |                         |            |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Conductivity                                    | --                         | --                      | mS/cm      | 0.827                                   | 1.24                                    | NA                                        | 0.946                                   | 1.43                                    | NA                                      | 2.53                                    | 1.36                                    | 1.4                                     | 2.01                                    | 1.93                                    | 1.95                                    | 2.16                                    | 0.62                                    |
| Dissolved oxygen (DO), field                    | --                         | --                      | mg/L       | 0.32                                    | 0.32                                    | NA                                        | 2.34                                    | 0.27                                    | NA                                      | 1.7                                     | 6.79                                    | 0.57                                    | 0.62                                    | 6.58                                    | 1.91                                    | 2.95                                    | 5.86                                    |
| Oxidation reduction potential (ORP), field      | --                         | --                      | millivolts | 22.8                                    | 23.9                                    | NA                                        | -16.3                                   | 2.9                                     | NA                                      | -10                                     | 135.8                                   | -39.7                                   | -24.1                                   | -16.1                                   | -78.1                                   | 90.3                                    | 127.7                                   |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0              | s.u.       | 7.35                                    | 7.32                                    | NA                                        | 7.41                                    | 6.9                                     | NA                                      | 6.98                                    | 7.41                                    | 7.05                                    | 6.81                                    | 6.65                                    | 6.87                                    | 6.61                                    | 10.08                                   |
| Temperature, field                              | --                         | --                      | Deg C      | 10.2                                    | 20.5                                    | NA                                        | 10                                      | 13.3                                    | NA                                      | 12                                      | 22.7                                    | 10.8                                    | 14.8                                    | 20.5                                    | 9.5                                     | 21.9                                    | 15.4                                    |
| Turbidity (field)                               | --                         | --                      | NTU        | 6.75                                    | 7.34                                    | NA                                        | 6.68                                    | 9.76                                    | NA                                      | 32                                      | 265                                     | 3.02                                    | 4.63                                    | 0.02                                    | 9.12                                    | 67.6                                    | 3.14                                    |
| Volatile Organics (via EPA Method 537 Modified) |                            |                         |            |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trichlorobenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trichloropropane                          | 42                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trimethylbenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Acrylonitrile                                   | 2.6                        | 2                       | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <2 [<2]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Bromobenzene                                    | 18                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chlorobromomethane                              | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cymene (p-Isopropyltoluene)                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Dibromomethane                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Ethyl ether                                     | 10                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <10 [<10]                               | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Iodomethane                                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-Butylbenzene                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-Propylbenzene                                 | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| tert-Butylbenzene                               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Tetrahydrofuran                                 | 95                         | 11,000                  | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <90 [<90]                               | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| trans-1,4-Dichloro-2-butene                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <5 [<5]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| 1,2-Dichlorobenzene                             | 600                        | 13                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| 1,4-Dichlorobenzene                             | 75                         | 17                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| 1,4-Dioxane                                     | 7.2                        | 280                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | 255 Y [241 Y]                           | 250 Y                                   | 159                                     | 173                                     | 162                                     | 1                                       | 2                                       |
| 1,1,1-Trichloroethane                           | 200                        | 89                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| 2-Hexanone                                      | 1,000                      | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <10                                     | NA                                      | <50 [<50]                               | NA                                      | <10                                     | <10                                     | NA                                      | NA                                      | NA                                      |
| 1,1,2,2-Tetrachloroethane                       | 8.5                        | 78                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Acetone                                         | 730                        | 1,700                   | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <10                                     | NA                                      | <50 [<50]                               | NA                                      | <10                                     | <10                                     | NA                                      | NA                                      | NA                                      |
| 1,1,2-Trichloroethane                           | 5                          | 330                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Bromodichloromethane                            | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| 1,1-Dichloroethane                              | 880                        | 740                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | 2                                       | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Bromoform                                       | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| 1,1-Dichloroethene                              | 7                          | 130                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Bromomethane (Methyl bromide)                   | 10                         | 5                       | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <5 [<5]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| 1,2-Dichloroethane                              | 5                          | 360                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Carbon disulfide                                | 800                        | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <5 [<5]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Carbon tetrachloride                            | 5                          | 38                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| cis-1,2-Dichloroethene                          | 70                         | 620                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Chlorobenzene                                   | 100                        | 25                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                   | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Chloroform (Trichloromethane)                   | 80                         | 350                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Trichloroethene                                 | 5                          | 200                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Chloromethane (Methyl chloride)                 | 260                        | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <5 [<5]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Tetrachloroethene                               | 5                          | 60                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| cis-1,3-Dichloropropene                         | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Vinyl chloride                                  | 2                          | 13                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| 2-Methylnaphthalene                             | 260                        | 19                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chloroethane                                    | 430                        | 1,100                   | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <5 [<5]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <5 [<5]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Benzene                                         | 5                          | 200                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Methyl acetate                                  | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <10                                     | NA                                      | NA                                      | NA                                      | <10                                     | <10                                     | NA                                      | NA                                      | NA                                      |
| Ethylbenzene                                    | 74                         | 18                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Methylene chloride                              | 5                          | 1,500                   | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <5 [<5]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Styrene                                         | 100                        | 80                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Toluene                                         | 790                        | 270                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| trans-1,3-Dichloropropene                       | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                   | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <5 [<5]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Naphthalene                                     | 520                        | 11                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Trifluorotrichloroethane (Freon 113)            | 170,000                    | 32                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                   | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <10                                     | NA                                      | <25 [<25]                               | NA                                      | <10                                     | <10                                     | NA                                      | NA                                      | NA                                      |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <10                                     | NA                                      | <50 [<50]                               | NA                                      | <10                                     | <10                                     | NA                                      | NA                                      | NA                                      |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <5 [<5]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units | MW-12-12<br>12/03/19<br>MW-12-12_120319 | MW-12-13<br>06/12/19<br>MW-12-13_061219 | MW-12-13<br>08/27/19<br>MW-12-13_20190827 | MW-12-13<br>12/03/19<br>MW-12-13_120319 | MW-12-16<br>06/10/19<br>MW-12-16_061019 | MW-12-18<br>06/07/19<br>MW-12-18_060719 | MW-12-18<br>12/05/19<br>MW-12-18_120519 | MW-12-21<br>06/05/19<br>MW-12-21_060519 | MW-12-21<br>12/06/19<br>MW-12-21_120619 | MW-13-22<br>06/06/19<br>MW-13-22_060619 | MW-13-22<br>08/27/19<br>MW-13-22_082719 | MW-13-22<br>12/05/19<br>MW-13-22_120519 | MW-13-23<br>06/05/19<br>MW-13-23_060519 | MW-13-24<br>06/06/19<br>MW-13-24_060619 |
|-------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------|-----------------------------------------|-----------------------------------------|-------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,2-Dichloropropane                                                                       | 5                          | 230                     | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                      | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Cyclohexane                                                                               | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Methyl cyclohexane                                                                        | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Dibromochloromethane                                                                      | 80                         | --                      | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <5 [<5]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| Isopropyl benzene                                                                         | 800                        | 28                      | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <5 [<5]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| o-Xylene                                                                                  | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      |
| m&p-Xylene                                                                                | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <2                                      | NA                                      | <2 [<2]                                 | NA                                      | <2                                      | <2                                      | NA                                      | NA                                      | NA                                      |
| Total Xylenes                                                                             | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | <2                                      | NA                                      | <2 [<2]                                 | NA                                      | <2                                      | <2                                      | NA                                      | NA                                      | NA                                      |
| Hexachloroethane                                                                          | 7.3                        | 6.7                     | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                         |       |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,4-Dioxane                                                                               | 7.2                        | 280                     | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                         |       |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Antimony                                                                                  | 0.006                      | 0.13                    | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Arsenic                                                                                   | 0.01                       | 0.01                    | mg/L  | NA                                      | <0.002                                  | NA                                        | NA                                      | 0.005                                   | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Barium                                                                                    | 2                          | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Boron                                                                                     | 0.5                        | 7.2                     | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cadmium                                                                                   | 0.005                      | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium III                                                                              | 0.1                        | --                      | mg/L  | NA                                      | 0.052                                   | NA                                        | NA                                      | <0.005                                  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                   | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cobalt                                                                                    | 0.04                       | 0.1                     | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Copper                                                                                    | 1                          | --                      | mg/L  | NA                                      | <0.005                                  | NA                                        | NA                                      | <0.005                                  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Lead                                                                                      | 0.004                      | --                      | mg/L  | NA                                      | <0.003                                  | NA                                        | NA                                      | <0.003                                  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Manganese                                                                                 | 0.05                       | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Mercury                                                                                   | 0.002                      | 0.0000013               | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Nickel                                                                                    | 0.1                        | 0.12                    | mg/L  | NA                                      | 0.023                                   | NA                                        | NA                                      | <0.005                                  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Selenium                                                                                  | 0.05                       | 0.005                   | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Silver                                                                                    | 0.034                      | 0.0002                  | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Vanadium                                                                                  | 0.0045                     | 0.027                   | mg/L  | NA                                      | <0.005                                  | NA                                        | NA                                      | <0.005                                  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Zinc                                                                                      | 2.4                        | 0.26                    | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                         |       |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium (dissolved)                                                                      | --                         | 0.16                    | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Copper (dissolved)                                                                        | 1                          | 0.02                    | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                   | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Nitrate (as N)                                                                            | 10                         | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <.5                                     | NA                                      | NA                                      | NA                                      |
| Phosphorus                                                                                | 63                         | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | .39                                     | NA                                      | NA                                      | NA                                      |
| Sulfate                                                                                   | 250                        | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total dissolved solids (TDS)                                                              | 500                        | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 1.0                                     | NA                                      | NA                                      | NA                                      |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                         |       |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 4:2 FTS                                                                                   | --                         | --                      | ng/L  | <8                                      | <8                                      | <7.4                                      | <7.7                                    | NA                                      | <8                                      | <7.4                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 6:2 FTS                                                                                   | --                         | --                      | ng/L  | <8                                      | <8                                      | <7.4                                      | <7.7                                    | NA                                      | <8                                      | <7.4                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 8:2 FTS                                                                                   | --                         | --                      | ng/L  | <8                                      | <8                                      | <7.4                                      | <7.7                                    | NA                                      | <8                                      | <7.4                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                      | ng/L  | <20                                     | <20                                     | <19                                       | <19                                     | NA                                      | <20                                     | <19                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                      | ng/L  | <20                                     | <20                                     | <19                                       | <19                                     | NA                                      | <20                                     | <19                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                      | ng/L  | 1.58 J                                  | 2.15 J                                  | <3.7                                      | 1.84 J                                  | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                      | ng/L  | 34.8                                    | 39.1                                    | 28.9                                      | 27.3                                    | NA                                      | 5.52 J                                  | 3.97 J                                  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                      | ng/L  | <4                                      | <4                                      | <3.7                                      | <3.8                                    | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                      | ng/L  | 13.1                                    | <4                                      | <3.7                                      | <3.8                                    | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorododecanoic acid (PFDoA)                                                          | --                         | --                      | ng/L  | <4                                      | <4                                      | <3.7                                      | <3.8                                    | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                     | --                         | --                      | ng/L  | <4                                      | <4                                      | <3.7                                      | <3.8                                    | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                      | ng/L  | 32.6                                    | 8.32                                    | 11.3                                      | 11                                      | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                      | ng/L  | 1.27 J                                  | <4                                      | <3.7                                      | <3.8                                    | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                      | ng/L  | 71.1                                    | 58.7                                    | 52.9                                      | 47.2                                    | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                      | ng/L  | <4                                      | <4                                      | <3.7                                      | <3.8                                    | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                      | ng/L  | 9.14                                    | <4                                      | <3.7                                      | <3.8                                    | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                      | ng/L  | <4                                      | <4                                      | <3.7                                      | <3.8                                    | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                      | ng/L  | 48.7                                    | <4                                      | <3.7                                      | <3.8                                    | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                  | ng/L  | 69.9                                    | <4                                      | <3.7                                      | <3.8                                    | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                      | ng/L  | <4                                      | <4                                      | <3.7                                      | <3.8                                    | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                      | ng/L  | 56.9                                    | 47                                      | 43.4                                      | 36.6                                    | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                      | ng/L  | <4                                      | <4                                      | <3.7                                      | <3.8                                    | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorotridecanoic acid (PFTriA)                                                        | --                         | --                      | ng/L  | <4                                      | <4                                      | <3.7                                      | <3.8                                    | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                      | ng/L  | <4                                      | <4                                      | <3.7                                      | <3.8                                    | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                      | ng/L  | 220.49 J                                | 155.27 J                                | 136.5                                     | 123.94 J                                | NA                                      | 5.52 J                                  | 3.97 J                                  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Combined PFOS and PFOA                                                                    | 70                         | --                      | ng/L  | 118.6                                   | <4                                      | <3.7                                      | <3.8                                    | NA                                      | <4                                      | <3.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units      | MW-13-25<br>06/05/19<br>MW-13-25_060519 | MW-13-25<br>12/06/19<br>MW-13-25_120619 | MW-13-28<br>06/05/19<br>MW-13-28_060519 | MW-13-29<br>06/05/19<br>MW-13-29_060519 | MW-13-31<br>06/11/19<br>MW-13-31_061119 | MW-13-32<br>06/11/19<br>MW-13-32_061119 | MW-13-34<br>06/07/19<br>MW-13-34_060719 | MW-13-34<br>08/29/19<br>MW-13-34_082919 | MW-13-34<br>12/05/19<br>MW-13-34_120519 | MW-13-35<br>06/10/19<br>MW-13-35_061019 | MW-13-36R<br>06/12/19<br>MW-13-36R_061219 | MW-13-36R<br>08/27/19<br>MW-13-36R_20190827 | MW-13-36R<br>12/05/19<br>MW-13-36R_120519 | MW-13-38<br>06/10/19<br>MW-13-38_061019 |
|-------------------------------------------------|----------------------------|-------------------------|------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|---------------------------------------------|-------------------------------------------|-----------------------------------------|
| Field                                           |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                             |                                           |                                         |
| Conductivity                                    | --                         | --                      | mS/cm      | 1.57                                    | 1.68                                    | 1.41                                    | 2.73                                    | 1                                       | 0.88                                    | 2.19                                    | 2.12                                    | 1.84                                    | 2.23                                    | 1.44                                      | NA                                          | 1.345                                     | 2.66                                    |
| Dissolved oxygen (DO), field                    | --                         | --                      | mg/L       | 0.2                                     | 0.95                                    | 0.18                                    | 0.19                                    | 0.27                                    | 0.55                                    | 0.15                                    | 0.39                                    | 1.42                                    | 0.33                                    | 0.2                                       | NA                                          | 0.68                                      | 4.04                                    |
| Oxidation reduction potential (ORP), field      | --                         | --                      | millivolts | -69.6                                   | -58.6                                   | -99.7                                   | -23.7                                   | 68                                      | 135.6                                   | -49                                     | -99.2                                   | -86.6                                   | -76.1                                   | -60.6                                     | NA                                          | -30.1                                     | -63.7                                   |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0              | s.u.       | 6.62                                    | 6.77                                    | 6.92                                    | 6.59                                    | 6.77                                    | 6.97                                    | 6.9                                     | 6.91                                    | 7.24                                    | 6.96                                    | 11.85                                     | NA                                          | 11.8                                      | 7.13                                    |
| Temperature, field                              | --                         | --                      | Deg C      | 24.6                                    | 11.8                                    | 19.2                                    | 21.6                                    | 13.8                                    | 14.1                                    | 24.9                                    | 26.3                                    | 9.7                                     | 14                                      | 15.8                                      | NA                                          | 7.9                                       | 15.9                                    |
| Turbidity (field)                               | --                         | --                      | NTU        | 12.3                                    | 0.02                                    | 55.5                                    | 7.56                                    | 0.05                                    | 0.42                                    | 122                                     | 193                                     | 7.43                                    | 9.25                                    | 9.29                                      | NA                                          | 12                                        | 15.4                                    |
| Volatile Organics (via EPA Method 537 Modified) |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                             |                                           |                                         |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 1,2,3-Trichlorobenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 1,2,3-Trichloropropane                          | 42                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 1,2,3-Trimethylbenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Acrylonitrile                                   | 2.6                        | 2                       | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Bromobenzene                                    | 18                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Chlorobromomethane                              | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Cymene (p-Isopropyltoluene)                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Dibromomethane                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Ethyl ether                                     | 10                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Iodomethane                                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| N-Butylbenzene                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| N-Propylbenzene                                 | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| tert-Butylbenzene                               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Tetrahydrofuran                                 | 95                         | 11,000                  | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| trans-1,4-Dichloro-2-butene                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 1,2-Dichlorobenzene                             | 600                        | 13                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 1,4-Dichlorobenzene                             | 75                         | 17                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 1,4-Dioxane                                     | 7.2                        | 280                     | µg/L       | 4                                       | 4 [4]                                   | 4                                       | 21                                      | NA                                      | NA                                      | 74                                      | 94                                      | 105                                     | NA                                      | NA                                        | NA                                          | NA                                        | <1                                      |
| 1,1,1-Trichloroethane                           | 200                        | 89                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 2-Hexanone                                      | 1,000                      | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | <10                                     | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 1,1,2,2-Tetrachloroethane                       | 8.5                        | 78                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Acetone                                         | 730                        | 1,700                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | <10                                     | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 1,1,2-Trichloroethane                           | 5                          | 330                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Bromodichloromethane                            | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 1,1-Dichloroethane                              | 880                        | 740                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Bromoform                                       | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 1,1-Dichloroethene                              | 7                          | 130                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Bromomethane (Methyl bromide)                   | 10                         | 5                       | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 1,2-Dichloroethane                              | 5                          | 360                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Carbon disulfide                                | 800                        | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Carbon tetrachloride                            | 5                          | 38                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| cis-1,2-Dichloroethene                          | 70                         | 620                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Chlorobenzene                                   | 100                        | 25                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Chloroform (Trichloromethane)                   | 80                         | 350                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Trichloroethene                                 | 5                          | 200                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Chloromethane (Methyl chloride)                 | 260                        | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Tetrachloroethene                               | 5                          | 60                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| cis-1,3-Dichloropropene                         | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Vinyl chloride                                  | 2                          | 13                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 2-Methylnaphthalene                             | 260                        | 19                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Chloroethane                                    | 430                        | 1,100                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Benzene                                         | 5                          | 200                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Methyl acetate                                  | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | <10                                     | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Ethylbenzene                                    | 74                         | 18                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Methylene chloride                              | 5                          | 1,500                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Styrene                                         | 100                        | 80                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Toluene                                         | 790                        | 270                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| trans-1,3-Dichloropropene                       | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Naphthalene                                     | 520                        | 11                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Trifluorotrichloroethane (Freon 113)            | 170,000                    | 32                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | <10                                     | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | <10                                     | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units | MW-13-25<br>06/05/19<br>MW-13-25_060519 | MW-13-25<br>12/06/19<br>MW-13-25_120619 | MW-13-28<br>06/05/19<br>MW-13-28_060519 | MW-13-29<br>06/05/19<br>MW-13-29_060519 | MW-13-31<br>06/11/19<br>MW-13-31_061119 | MW-13-32<br>06/11/19<br>MW-13-32_061119 | MW-13-34<br>06/07/19<br>MW-13-34_060719 | MW-13-34<br>08/29/19<br>MW-13-34_082919 | MW-13-34<br>12/05/19<br>MW-13-34_120519 | MW-13-35<br>06/10/19<br>MW-13-35_061019 | MW-13-36R<br>06/12/19<br>MW-13-36R_061219 | MW-13-36R<br>08/27/19<br>MW-13-36R_20190827 | MW-13-36R<br>12/05/19<br>MW-13-36R_120519 | MW-13-38<br>06/10/19<br>MW-13-38_061019 |
|-------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|---------------------------------------------|-------------------------------------------|-----------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                             |                                           |                                         |
| 1,2-Dichloropropane                                                                       | 5                          | 230                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Cyclohexane                                                                               | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Methyl cyclohexane                                                                        | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Dibromochloromethane                                                                      | 80                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Isopropyl benzene                                                                         | 800                        | 28                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| o-Xylene                                                                                  | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| m&p-Xylene                                                                                | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <2                                      | <2                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Total Xylenes                                                                             | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <2                                      | <2                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Hexachloroethane                                                                          | 7.3                        | 6.7                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                             |                                           |                                         |
| 1,4-Dioxane                                                                               | 7.2                        | 280                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                             |                                           |                                         |
| Antimony                                                                                  | 0.006                      | 0.13                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Arsenic                                                                                   | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | <0.002                                  | <0.002                                  | NA                                      | NA                                      | NA                                      | <0.002                                  | <0.002                                    | NA                                          | NA                                        | NA                                      |
| Barium                                                                                    | 2                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Boron                                                                                     | 0.5                        | 7.2                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Cadmium                                                                                   | 0.005                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Chromium III                                                                              | 0.1                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | <0.005                                  | <0.005                                  | NA                                      | NA                                      | NA                                      | <0.005                                  | <0.005                                    | NA                                          | NA                                        | NA                                      |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Cobalt                                                                                    | 0.04                       | 0.1                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Copper                                                                                    | 1                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | <0.005                                  | 0.006                                   | NA                                      | NA                                      | NA                                      | <0.005                                  | <0.005                                    | NA                                          | NA                                        | NA                                      |
| Lead                                                                                      | 0.004                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | <0.003                                  | <0.003                                  | NA                                      | NA                                      | NA                                      | <0.003                                  | <0.003                                    | NA                                          | NA                                        | NA                                      |
| Manganese                                                                                 | 0.05                       | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Mercury                                                                                   | 0.002                      | 0.0000013               | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Nickel                                                                                    | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | 0.018                                   | 0.390                                   | NA                                      | NA                                      | NA                                      | <0.005                                  | <0.005                                    | NA                                          | NA                                        | NA                                      |
| Selenium                                                                                  | 0.05                       | 0.005                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Silver                                                                                    | 0.034                      | 0.0002                  | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Vanadium                                                                                  | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | <0.005                                  | <0.005                                  | NA                                      | NA                                      | NA                                      | <0.005                                  | 0.009                                     | NA                                          | NA                                        | NA                                      |
| Zinc                                                                                      | 2.4                        | 0.26                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                             |                                           |                                         |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Chromium (dissolved)                                                                      | --                         | 0.16                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Copper (dissolved)                                                                        | 1                          | 0.02                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                             |                                           |                                         |
| Nitrate (as N)                                                                            | 10                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Phosphorus                                                                                | 63                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Sulfate                                                                                   | 250                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Total dissolved solids (TDS)                                                              | 500                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                          | NA                                        | NA                                      |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                             |                                           |                                         |
| 4:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <8                                        | <8                                          | <8                                        | NA                                      |
| 6:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <8                                        | <8                                          | <8                                        | NA                                      |
| 8:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <8                                        | <8                                          | <8                                        | NA                                      |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 5.66 J                                    | 5.94 J                                      | 6.11 J                                    | NA                                      |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <20                                       | <20                                         | <20                                       | NA                                      |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 1.71 J                                    | 3.02 J                                      | 2.21 J                                    | NA                                      |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 29.2                                      | <8                                          | 27.2                                      | NA                                      |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 1.27 J                                    | <4                                          | <4                                        | NA                                      |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 22.1                                      | 23.5                                        | 21.5                                      | NA                                      |
| Perfluorododecanoic acid (PFDoA)                                                          | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                        | <4                                          | <4                                        | NA                                      |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                     | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                        | <4                                          | <4                                        | NA                                      |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 25.3                                      | 27.1                                        | 29.5                                      | NA                                      |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 1.08 J                                    | <4                                          | 1.06 J                                    | NA                                      |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 24.1                                      | 25.2                                        | 27.3                                      | NA                                      |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                        | <4                                          | <4                                        | NA                                      |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 13.9                                      | 14.5                                        | 11                                        | NA                                      |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 6.52                                      | 6.81                                        | 5.9                                       | NA                                      |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 47.8                                      | 56.7                                        | 45.5                                      | NA                                      |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                  | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 57.5                                      | 60.6                                        | 57.1                                      | NA                                      |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                        | <4                                          | <4                                        | NA                                      |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 24.1                                      | 27.1                                        | 26.5                                      | NA                                      |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                        | <4                                          | <4                                        | NA                                      |
| Perfluorotridecanoic Acid (PFTriA)                                                        | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                        | <4                                          | <4                                        | NA                                      |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                        | <4                                          | <4                                        | NA                                      |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 154.94 J                                  | 133.17 J                                    | 158.28 J                                  | NA                                      |
| Combined PFOS and PFOA                                                                    | 70                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 105.3                                     | 117.3                                       | 102.6                                     | NA                                      |

See notes on last page.



Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units      | MW-13-40<br>06/11/19<br>MW-13-40_061119 | MW-13-41<br>06/10/19<br>MW-13-41_061019 | MW-13-43<br>06/06/19<br>MW-13-43_060619 | MW-13-43<br>12/04/19<br>MW-13-43_120419 | MW-13-44<br>06/06/19<br>MW-13-44_060619 | MW-13-45<br>06/05/19<br>MW-13-45_060519 | MW-13-45<br>12/03/19<br>MW-13-45_120319 | MW-13-46<br>06/06/19<br>MW-13-46_060619 | MW-13-46<br>08/28/19<br>MW-13-46_082819 | MW-13-46<br>12/06/19<br>MW-13-46_120619 | MW-13-47<br>06/07/19<br>MW-13-47_060719 | MW-13-48<br>06/07/19<br>MW-13-48_060719 | MW-13-48<br>12/06/19<br>MW-13-48_120619 | MW-13-49<br>06/06/19<br>MW-13-49_060619 |
|-------------------------------------------------|----------------------------|-------------------------|------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Field                                           |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Conductivity                                    | --                         | --                      | mS/cm      | 7                                       | 5.35                                    | 2.8                                     | 2.57                                    | 1.48                                    | 1.03                                    | NA                                      | 2.21                                    | 2.18                                    | 2.35                                    | 1.76                                    | NA                                      | 2.74                                    | 1.74                                    |
| Dissolved oxygen (DO), field                    | --                         | --                      | mg/L       | 0.23                                    | 0.6                                     | 0.23                                    | 0.36                                    | 0.47                                    | 0.14                                    | NA                                      | 0.19                                    | 0.37                                    | 0.49                                    | 0.15                                    | NA                                      | 2.02                                    | 0.31                                    |
| Oxidation reduction potential (ORP), field      | --                         | --                      | millivolts | -55.2                                   | -75.1                                   | 58.9                                    | -59.9                                   | 81.7                                    | -56.5                                   | NA                                      | -70.3                                   | -28.2                                   | -46.7                                   | -156.9                                  | NA                                      | -59.1                                   | -21.7                                   |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0              | s.u.       | 6.84                                    | 7.2                                     | 6.88                                    | 7.02                                    | 7.13                                    | 7.21                                    | NA                                      | 6.55                                    | 6.52                                    | 6.65                                    | 6.97                                    | NA                                      | 6.79                                    | 6.92                                    |
| Temperature, field                              | --                         | --                      | Deg C      | 16.4                                    | 17.2                                    | 15                                      | 11.7                                    | 16.6                                    | 17.6                                    | NA                                      | 20.6                                    | 20.4                                    | 8.9                                     | 19.1                                    | NA                                      | 9.4                                     | 16.2                                    |
| Turbidity (field)                               | --                         | --                      | NTU        | 27.6                                    | 39.4                                    | 0.02                                    | 2.92                                    | 0.02                                    | 0.02                                    | NA                                      | 21.1                                    | 9.31                                    | 10.7                                    | 9.42                                    | NA                                      | 8.11                                    | 6.78                                    |
| Volatile Organics (via EPA Method 537 Modified) |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trichlorobenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trichloropropane                          | 42                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trimethylbenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Acrylonitrile                                   | 2.6                        | 2                       | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Bromobenzene                                    | 18                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chlorobromomethane                              | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cymene (p-Isopropyltoluene)                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Dibromomethane                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Ethyl ether                                     | 10                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Iodomethane                                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-Butylbenzene                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-Propylbenzene                                 | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| tert-Butylbenzene                               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Tetrahydrofuran                                 | 95                         | 11,000                  | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| trans-1,4-Dichloro-2-butene                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2-Dichlorobenzene                             | 600                        | 13                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,4-Dichlorobenzene                             | 75                         | 17                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,4-Dioxane                                     | 7.2                        | 280                     | µg/L       | 3                                       | 23                                      | 266 Y                                   | 320 Y                                   | 2 [1]                                   | 40                                      | 41                                      | <1                                      | <1                                      | <1                                      | 2                                       | 128                                     | 162                                     | <1                                      |
| 1,1,1-Trichloroethane                           | 200                        | 89                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 2-Hexanone                                      | 1,000                      | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,1,2,2-Tetrachloroethane                       | 8.5                        | 78                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Acetone                                         | 730                        | 1,700                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,1,2-Trichloroethane                           | 5                          | 330                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Bromodichloromethane                            | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,1-Dichloroethane                              | 880                        | 740                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Bromoform                                       | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,1-Dichloroethene                              | 7                          | 130                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Bromomethane (Methyl bromide)                   | 10                         | 5                       | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2-Dichloroethane                              | 5                          | 360                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Carbon disulfide                                | 800                        | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Carbon tetrachloride                            | 5                          | 38                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| cis-1,2-Dichloroethene                          | 70                         | 620                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chlorobenzene                                   | 100                        | 25                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chloroform (Trichloromethane)                   | 80                         | 350                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Trichloroethene                                 | 5                          | 200                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chloromethane (Methyl chloride)                 | 260                        | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Tetrachloroethene                               | 5                          | 60                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| cis-1,3-Dichloropropene                         | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Vinyl chloride                                  | 2                          | 13                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 2-Methylnaphthalene                             | 260                        | 19                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chloroethane                                    | 430                        | 1,100                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Benzene                                         | 5                          | 200                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Methyl acetate                                  | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Ethylbenzene                                    | 74                         | 18                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Methylene chloride                              | 5                          | 1,500                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Styrene                                         | 100                        | 80                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Toluene                                         | 790                        | 270                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| trans-1,3-Dichloropropene                       | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Naphthalene                                     | 520                        | 11                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Trifluorotrichloroethane (Freon 113)            | 170,000                    | 32                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |

See notes on last page.



Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units | MW-13-40<br>06/11/19<br>MW-13-40_061119 | MW-13-41<br>06/10/19<br>MW-13-41_061019 | MW-13-43<br>06/06/19<br>MW-13-43_060619 | MW-13-43<br>12/04/19<br>MW-13-43_120419 | MW-13-44<br>06/06/19<br>MW-13-44_060619 | MW-13-45<br>06/05/19<br>MW-13-45_060519 | MW-13-45<br>12/03/19<br>MW-13-45_120319 | MW-13-46<br>06/06/19<br>MW-13-46_060619 | MW-13-46<br>08/28/19<br>MW-13-46_082819 | MW-13-46<br>12/06/19<br>MW-13-46_120619 | MW-13-47<br>06/07/19<br>MW-13-47_060719 | MW-13-48<br>06/07/19<br>MW-13-48_060719 | MW-13-48<br>12/06/19<br>MW-13-48_120619 | MW-13-49<br>06/06/19<br>MW-13-49_060619 |
|-------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,2-Dichloropropane                                                                       | 5                          | 230                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cyclohexane                                                                               | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Methyl cyclohexane                                                                        | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Dibromochloromethane                                                                      | 80                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Isopropyl benzene                                                                         | 800                        | 28                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| o-Xylene                                                                                  | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| m&p-Xylene                                                                                | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total Xylenes                                                                             | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Hexachloroethane                                                                          | 7.3                        | 6.7                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,4-Dioxane                                                                               | 7.2                        | 280                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Antimony                                                                                  | 0.006                      | 0.13                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Arsenic                                                                                   | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Barium                                                                                    | 2                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Boron                                                                                     | 0.5                        | 7.2                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cadmium                                                                                   | 0.005                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium III                                                                              | 0.1                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cobalt                                                                                    | 0.04                       | 0.1                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Copper                                                                                    | 1                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Lead                                                                                      | 0.004                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Manganese                                                                                 | 0.05                       | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Mercury                                                                                   | 0.002                      | 0.0000013               | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Nickel                                                                                    | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Selenium                                                                                  | 0.05                       | 0.005                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Silver                                                                                    | 0.034                      | 0.0002                  | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Vanadium                                                                                  | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Zinc                                                                                      | 2.4                        | 0.26                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium (dissolved)                                                                      | --                         | 0.16                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Copper (dissolved)                                                                        | 1                          | 0.02                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Nitrate (as N)                                                                            | 10                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Phosphorus                                                                                | 63                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Sulfate                                                                                   | 250                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total dissolved solids (TDS)                                                              | 500                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 4:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 6:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 8:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorododecanoic acid (PFDoA)                                                          | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                     | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                  | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorotridecanoic Acid (PFTrIA)                                                        | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Combined PFOS and PFOA                                                                    | 70                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units      | MW-13-49<br>06/07/19<br>MW-13-49_060719 | MW-13-49<br>08/29/19<br>MW-13-49_082919 | MW-14-54<br>06/05/19<br>MW-14-54_060519 | MW-14-55<br>06/05/19<br>MW-14-55_060519 | MW-14-56<br>06/13/19<br>MW-14-56_061319 | MW-14-56<br>12/05/19<br>MW-14-56_120519 | MW-14-57<br>06/05/19<br>MW-14-57_060519 | MW-14-58<br>06/06/19<br>MW-14-58_060619 | MW-14-58<br>12/04/19<br>MW-14-58_120419 | MW-14-59<br>06/06/19<br>MW-14-59_060619 | MW-14-59<br>12/03/19<br>MW-14-59_120319 | MW-14-60<br>06/06/19<br>MW-14-60_060619 | MW-14-60<br>12/03/19<br>MW-14-60_120319 | MW-14-61<br>06/13/19<br>MW-14-61_061319 |
|-------------------------------------------------|----------------------------|-------------------------|------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Field                                           |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Conductivity                                    | --                         | --                      | mS/cm      | 2.83                                    | 1.81                                    | 1.15                                    | 0.623                                   | 5.85                                    | 5.664                                   | 0.75                                    | 4.99                                    | 4.44                                    | 0.66                                    | 0.74                                    | 1.11                                    | 1.18                                    | 1.68                                    |
| Dissolved oxygen (DO), field                    | --                         | --                      | mg/L       | 0.1                                     | 4.09                                    | 0.05                                    | 5.8                                     | 2.45                                    | 0.44                                    | 0.78                                    | 0.14                                    | 0.09                                    | 0.16                                    | 0.2                                     | 0.14                                    | 0.13                                    | 0.75                                    |
| Oxidation reduction potential (ORP), field      | --                         | --                      | millivolts | 42.1                                    | -59.8                                   | -319.5                                  | 117.5                                   | -49.4                                   | -12.4                                   | 119.9                                   | -107.4                                  | -43.1                                   | -38                                     | 33                                      | -130.7                                  | -30.6                                   | -68.1                                   |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0              | s.u.       | 6.62                                    | 6.82                                    | 8.33                                    | 7.33                                    | 6.71                                    | 6.85                                    | 7.32                                    | 6.8                                     | 6.67                                    | 7.28                                    | 7.12                                    | 7.37                                    | 7.17                                    | 6.88                                    |
| Temperature, field                              | --                         | --                      | Deg C      | 20                                      | 18.7                                    | 12.6                                    | 11.9                                    | 13.8                                    | 12                                      | 13.7                                    | 13.9                                    | 12.8                                    | 13.4                                    | 12.2                                    | 13.3                                    | 11.5                                    | 15.9                                    |
| Turbidity (field)                               | --                         | --                      | NTU        | 5.12                                    | 8.34                                    | 0.02                                    | 0.02                                    | 32.3                                    | 9                                       | 0.02                                    | 0.02                                    | 0.02                                    | 0.02                                    | 7.04                                    | 0.02                                    | 5.95                                    | 6.37                                    |
| Volatile Organics (via EPA Method 537 Modified) |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trichlorobenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | <50 Y                                   | <5                                      | NA                                      | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trichloropropane                          | 42                         | --                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trimethylbenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | 170 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Acrylonitrile                                   | 2.6                        | 2                       | µg/L       | NA                                      | NA                                      | <20 Y                                   | <2                                      | NA                                      | NA                                      | <2                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Bromobenzene                                    | 18                         | --                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chlorobromomethane                              | --                         | --                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cymene (p-Isopropyltoluene)                     | --                         | --                      | µg/L       | NA                                      | NA                                      | <50 Y                                   | <5                                      | NA                                      | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Dibromomethane                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | <50 Y                                   | <5                                      | NA                                      | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Ethyl ether                                     | 10                         | --                      | µg/L       | NA                                      | NA                                      | <100 Y                                  | <10                                     | NA                                      | NA                                      | <10                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Iodomethane                                     | --                         | --                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-Butylbenzene                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-Propylbenzene                                 | 80                         | --                      | µg/L       | NA                                      | NA                                      | 150 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| tert-Butylbenzene                               | 80                         | --                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Tetrahydrofuran                                 | 95                         | 11,000                  | µg/L       | NA                                      | NA                                      | <900 Y                                  | <90                                     | NA                                      | NA                                      | <90                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| trans-1,4-Dichloro-2-butene                     | --                         | --                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                      | µg/L       | NA                                      | NA                                      | <50 Y                                   | <5                                      | NA                                      | NA                                      | <5                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                     | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| 1,2-Dichlorobenzene                             | 600                        | 13                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| 1,4-Dichlorobenzene                             | 75                         | 17                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| 1,4-Dioxane                                     | 7.2                        | 280                     | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | 10                                      | NA                                      | <1                                      | 59 [68]                                 | NA                                      | 41                                      | NA                                      | 97                                      | NA                                      | 151                                     |
| 1,1,1-Trichloroethane                           | 200                        | 89                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | 7                                       | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| 2-Hexanone                                      | 1,000                      | --                      | µg/L       | NA                                      | NA                                      | <500 Y                                  | <50                                     | NA                                      | NA                                      | <50                                     | <10 [<10]                               | NA                                      | <10                                     | NA                                      | <10                                     | NA                                      | NA                                      |
| 1,1,2,2-Tetrachloroethane                       | 8.5                        | 78                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Acetone                                         | 730                        | 1,700                   | µg/L       | NA                                      | NA                                      | <500 Y                                  | <50                                     | NA                                      | NA                                      | <50                                     | <10 [<10]                               | NA                                      | <10                                     | NA                                      | <10                                     | NA                                      | NA                                      |
| 1,1,2-Trichloroethane                           | 5                          | 330                     | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Bromodichloromethane                            | 80                         | --                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| 1,1-Dichloroethane                              | 880                        | 740                     | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | 5                                       | NA                                      | <1                                      | NA                                      | NA                                      |
| Bromoform                                       | 80                         | --                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| 1,1-Dichloroethene                              | 7                          | 130                     | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | 16                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Bromomethane (Methyl bromide)                   | 10                         | 5                       | µg/L       | NA                                      | NA                                      | <50 Y                                   | <5                                      | NA                                      | NA                                      | <5                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| 1,2-Dichloroethane                              | 5                          | 360                     | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Carbon disulfide                                | 800                        | --                      | µg/L       | NA                                      | NA                                      | <50 Y                                   | <5                                      | NA                                      | NA                                      | <5                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Carbon tetrachloride                            | 5                          | 38                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| cis-1,2-Dichloroethene                          | 70                         | 620                     | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Chlorobenzene                                   | 100                        | 25                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                   | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Chloroform (Trichloromethane)                   | 80                         | 350                     | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Trichloroethene                                 | 5                          | 200                     | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Chloromethane (Methyl chloride)                 | 260                        | --                      | µg/L       | NA                                      | NA                                      | <50 Y                                   | <5                                      | NA                                      | NA                                      | <5                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Tetrachloroethene                               | 5                          | 60                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | 1                                       | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| cis-1,3-Dichloropropene                         | --                         | --                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Vinyl chloride                                  | 2                          | 13                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | 12                                      | NA                                      | NA                                      |
| 2-Methylnaphthalene                             | 260                        | 19                      | µg/L       | NA                                      | NA                                      | <50 Y                                   | <5                                      | NA                                      | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chloroethane                                    | 430                        | 1,100                   | µg/L       | NA                                      | NA                                      | <50 Y                                   | <5                                      | NA                                      | NA                                      | <5                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | 44                                      | NA                                      | NA                                      |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                      | µg/L       | NA                                      | NA                                      | <50 Y                                   | <5                                      | NA                                      | NA                                      | <5                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Benzene                                         | 5                          | 200                     | µg/L       | NA                                      | NA                                      | 430 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Methyl acetate                                  | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <10 [<10]                               | NA                                      | NA                                      | <10                                     | NA                                      | <10                                     | NA                                      | NA                                      |
| Ethylbenzene                                    | 74                         | 18                      | µg/L       | NA                                      | NA                                      | 1,370 Y                                 | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Methylene chloride                              | 5                          | 1,500                   | µg/L       | NA                                      | NA                                      | <50 Y                                   | <5                                      | NA                                      | NA                                      | <5                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Styrene                                         | 100                        | 80                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Toluene                                         | 790                        | 270                     | µg/L       | NA                                      | NA                                      | 80 Y                                    | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| trans-1,3-Dichloropropene                       | --                         | --                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                   | µg/L       | NA                                      | NA                                      | <50 Y                                   | <5                                      | NA                                      | NA                                      | <5                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                      | µg/L       | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Naphthalene                                     | 520                        | 11                      | µg/L       | NA                                      | NA                                      | 200 Y                                   | <5                                      | NA                                      | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Trifluorotrichloroethane (Freon 113)            | 170,000                    | 32                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                   | µg/L       | NA                                      | NA                                      | <250 Y                                  | <25                                     | NA                                      | NA                                      | <25                                     | <10 [<10]                               | NA                                      | <10                                     | NA                                      | <10                                     | NA                                      | NA                                      |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                      | µg/L       | NA                                      | NA                                      | <500 Y                                  | <50                                     | NA                                      | NA                                      | <50                                     | <10 [<10]                               | NA                                      | <10                                     | NA                                      | <10                                     | NA                                      | NA                                      |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                      | µg/L       | NA                                      | NA                                      | <50 Y                                   | <5                                      | NA                                      | NA                                      | <5                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                      | µg/L       | NA                                      | NA                                      | 470 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                      |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units | MW-13-49<br>06/07/19<br>MW-13-49_060719 | MW-13-49<br>08/29/19<br>MW-13-49_082919 | MW-14-54<br>06/05/19<br>MW-14-54_060519 | MW-14-55<br>06/05/19<br>MW-14-55_060519 | MW-14-56<br>06/13/19<br>MW-14-56_061319 | MW-14-56<br>12/05/19<br>MW-14-56_120519 | MW-14-57<br>06/05/19<br>MW-14-57_060519 | MW-14-58<br>06/06/19<br>MW-14-58_060619 | MW-14-58<br>12/04/19<br>MW-14-58_120419 | MW-14-59<br>06/06/19<br>MW-14-59_060619 | MW-14-59<br>12/03/19<br>MW-14-59_120319 | MW-14-60<br>06/06/19<br>MW-14-60_060619 | MW-14-60<br>12/03/19<br>MW-14-60_120319 | MW-14-61<br>06/13/19<br>MW-14-61_061319 |
|-------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,2-Dichloropropane                                                                       | 5                          | 230                     | µg/L  | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                      | µg/L  | NA                                      | NA                                      | <10 Y                                   | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Cyclohexane                                                                               | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Methyl cyclohexane                                                                        | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Dibromochloromethane                                                                      | 80                         | --                      | µg/L  | NA                                      | NA                                      | <50 Y                                   | <5                                      | NA                                      | NA                                      | <5                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Isopropyl benzene                                                                         | 800                        | 28                      | µg/L  | NA                                      | NA                                      | 60 Y                                    | <5                                      | NA                                      | NA                                      | <5                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| o-Xylene                                                                                  | --                         | --                      | µg/L  | NA                                      | NA                                      | 20 Y                                    | <1                                      | NA                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| m&p-Xylene                                                                                | --                         | --                      | µg/L  | NA                                      | NA                                      | 940 Y                                   | <2                                      | NA                                      | NA                                      | <2                                      | <2 [<2]                                 | NA                                      | <2                                      | NA                                      | <2                                      | NA                                      | NA                                      |
| Total Xylenes                                                                             | --                         | --                      | µg/L  | NA                                      | NA                                      | 960 Y                                   | <2                                      | NA                                      | NA                                      | <2                                      | <2 [<2]                                 | NA                                      | <2                                      | NA                                      | <2                                      | NA                                      | NA                                      |
| Hexachloroethane                                                                          | 7.3                        | 6.7                     | µg/L  | NA                                      | NA                                      | <50 Y                                   | <5                                      | NA                                      | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,4-Dioxane                                                                               | 7.2                        | 280                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Antimony                                                                                  | 0.006                      | 0.13                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Arsenic                                                                                   | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Barium                                                                                    | 2                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Boron                                                                                     | 0.5                        | 7.2                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cadmium                                                                                   | 0.005                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium III                                                                              | 0.1                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cobalt                                                                                    | 0.04                       | 0.1                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Copper                                                                                    | 1                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Lead                                                                                      | 0.004                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Manganese                                                                                 | 0.05                       | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Mercury                                                                                   | 0.002                      | 0.0000013               | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Nickel                                                                                    | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Selenium                                                                                  | 0.05                       | 0.005                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Silver                                                                                    | 0.034                      | 0.0002                  | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Vanadium                                                                                  | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Zinc                                                                                      | 2.4                        | 0.26                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium (dissolved)                                                                      | --                         | 0.16                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Copper (dissolved)                                                                        | 1                          | 0.02                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Nitrate (as N)                                                                            | 10                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Phosphorus                                                                                | 63                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Sulfate                                                                                   | 250                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total dissolved solids (TDS)                                                              | 500                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 4:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <8                                      | <10                                     | NA                                      | <8 [<8]                                 | <7.4                                    | <8                                      | <8                                      | <8                                      | <7.4                                    | <8                                      |
| 6:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <8                                      | <10                                     | NA                                      | <8 [<8]                                 | <7.4                                    | <8                                      | <8                                      | <80                                     | <74                                     | <8                                      |
| 8:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <8                                      | <10                                     | NA                                      | <8 [<8]                                 | <7.4                                    | <8                                      | <8                                      | <8                                      | <7.4                                    | <8                                      |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <20                                     | <25                                     | NA                                      | <20 [<20]                               | <19                                     | <20                                     | <20                                     | <20                                     | <19                                     | <20                                     |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <20                                     | <25                                     | NA                                      | <20 [<20]                               | <19                                     | <20                                     | <20                                     | <20                                     | <19                                     | <20                                     |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | 1.3 J [<4]                              | 1.35 J                                  | <4                                      | <4                                      | 9.98                                    | 10.3                                    | <4                                      |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | 4.95 J                                  | 5.26 J                                  | NA                                      | 9.23 [8.77]                             | 6.13 J                                  | 9.84                                    | 7.24 J                                  | 12.9                                    | 10.8                                    | 3.42 J                                  |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | <4 [<4]                                 | <3.7                                    | <4                                      | <4                                      | <4                                      | <3.7                                    | <4                                      |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | <4 [<4]                                 | <3.7                                    | <4                                      | <4                                      | 1.49 J                                  | 1.05 J                                  | <4                                      |
| Perfluorododecanoic acid (PFDoA)                                                          | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | <4 [<4]                                 | <3.7                                    | <4                                      | <4                                      | <4                                      | <3.7                                    | <4                                      |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                     | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | <4 [<4]                                 | <3.7                                    | <4                                      | <4                                      | <4                                      | <3.7                                    | <4                                      |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | 4.87 [4.5]                              | 3.73                                    | 2.51 J                                  | 2.56 J                                  | 15.4                                    | 14.3                                    | 1.21 J                                  |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | 1.8 J [1.82 J]                          | 1.6 J                                   | 1.3 J                                   | <4                                      | 6.45                                    | 11.4                                    | <4                                      |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | 6.7 [6.32]                              | 5.26                                    | 4.57                                    | 4.22                                    | 6.87                                    | 6.93                                    | 1.78 J                                  |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | <4 [<4]                                 | <3.7                                    | <4                                      | <4                                      | <4                                      | <37                                     | <4                                      |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | <4 [<4]                                 | <3.7                                    | <4                                      | <4                                      | <40                                     | <37                                     | <4                                      |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | <4 [<4]                                 | <3.7                                    | <4                                      | <4                                      | <40                                     | <37                                     | <4                                      |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | <4 [<4]                                 | <3.7                                    | <4                                      | 1.54 J                                  | 15.3                                    | <37                                     | 2.63 J                                  |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                  | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | 11.1 [10.3]                             | 8.87                                    | 8.77                                    | 8.13                                    | 27.6 J                                  | 14.7 J                                  | 3.04 J                                  |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | <4 [<4]                                 | <3.7                                    | <4                                      | <4                                      | 3.76 J                                  | <3.7                                    | <4                                      |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | 5.41                                    | 4.36 J                                  | NA                                      | 6.68 [6.39]                             | 5.12                                    | 3.36 J                                  | <4                                      | <4                                      | 5.98                                    | 3.21 J                                  |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | <4 [<4]                                 | <3.7                                    | <4                                      | <4                                      | <4                                      | <3.7                                    | <4                                      |
| Perfluorotridecanoic Acid (PFTriA)                                                        | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | <4 [<4]                                 | <3.7                                    | <4                                      | <4                                      | <4                                      | <3.7                                    | <4                                      |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | <4 [<4]                                 | <3.7                                    | <4                                      | <4                                      | <4                                      | <3.7                                    | <4                                      |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | 10.36 J                                 | 9.62 J                                  | NA                                      | 29.28 J [27.8 J]                        | 23.19 J                                 | 21.58 J                                 | 14.02 J                                 | 56.85 J                                 | 60.76 J                                 | 9.62 J                                  |
| Combined PFOS and PFOA                                                                    | 70                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <5                                      | NA                                      | 11.1 [10.3]                             | 8.87                                    | 8.77                                    | 9.67 J                                  | 42.9 J                                  | 14.7 J                                  | 5.67 J                                  |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units      | MW-14-61<br>12/06/19<br>MW-14-61_120619 | MW-14-62<br>06/06/19<br>MW-14-62_060619 | MW-14-62<br>12/04/19<br>MW-14-62_120419 | MW-14-63<br>06/12/19<br>MW-14-63_061219 | MW-14-64<br>06/06/19<br>MW-14-64_060619 | MW-14-64<br>08/28/19<br>MW-14-64_082819 | MW-14-65<br>06/11/19<br>MW-14-65_061119 | MW-14-67<br>06/06/19<br>MW-14-67_060619 | MW-14-67<br>08/27/19<br>MW-14-67_20190827 | MW-14-67<br>12/03/19<br>MW-14-67_120319 | MW-14-70<br>06/06/19<br>MW-14-70_060619 | MW-14-70<br>08/27/19<br>MW-14-70_20190827 | MW-14-70<br>12/03/19<br>MW-14-70_120319 | MW-15-71<br>06/06/19<br>MW-15-71_060619 |
|-------------------------------------------------|----------------------------|-------------------------|------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|-----------------------------------------|-----------------------------------------|
| Field                                           |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                           |                                         |                                         |
| Conductivity                                    | --                         | --                      | mS/cm      | 1.768                                   | 0.55                                    | 0.559                                   | 1.23                                    | 1.86                                    | 1.66                                    | 0.880                                   | 1.49                                    | NA                                        | 1.558                                   | 1.45                                    | NA                                        | 1.423                                   | 1.39                                    |
| Dissolved oxygen (DO), field                    | --                         | --                      | mg/L       | 0.25                                    | 0.1                                     | 0.06                                    | 0.19                                    | 7.24                                    | 8.05                                    | 0.55                                    | 0.19                                    | NA                                        | 1.33                                    | 0.52                                    | NA                                        | 1.35                                    | 582                                     |
| Oxidation reduction potential (ORP), field      | --                         | --                      | millivolts | -81.7                                   | -294.3                                  | -131.9                                  | -64.6                                   | -21.6                                   | 162.6                                   | 135.6                                   | 29.7                                    | NA                                        | 101.3                                   | 33.8                                    | NA                                        | 111.3                                   | 143.8                                   |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0              | s.u.       | 6.95                                    | 11.4                                    | 11.24                                   | 6.92                                    | 7.08                                    | 7.02                                    | 6.97                                    | 7.31                                    | NA                                        | 7.35                                    | 7.21                                    | NA                                        | 7.4                                     | 7.04                                    |
| Temperature, field                              | --                         | --                      | Deg C      | 12.8                                    | 13.9                                    | 12.4                                    | 16.3                                    | 15.6                                    | 21.5                                    | 14.1                                    | 13.6                                    | NA                                        | 8.5                                     | 19.4                                    | NA                                        | 9.3                                     | 15.9                                    |
| Turbidity (field)                               | --                         | --                      | NTU        | 46                                      | 0.02                                    | 0.02                                    | 33.8                                    | 63.6                                    | 1.65                                    | 0.42                                    | 3.14                                    | NA                                        | 8.46                                    | 4.5                                     | NA                                        | 11.3                                    | 3.17                                    |
| Volatile Organics (via EPA Method 537 Modified) |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                           |                                         |                                         |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 1,2,3-Trichlorobenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 1,2,3-Trichloropropane                          | 42                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 1,2,3-Trimethylbenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Acrylonitrile                                   | 2.6                        | 2                       | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Bromobenzene                                    | 18                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Chlorobromomethane                              | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Cymene (p-Isopropyltoluene)                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Dibromomethane                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Ethyl ether                                     | 10                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Iodomethane                                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| N-Butylbenzene                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| N-Propylbenzene                                 | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| tert-Butylbenzene                               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Tetrahydrofuran                                 | 95                         | 11,000                  | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| trans-1,4-Dichloro-2-butene                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                     | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 1,2-Dichlorobenzene                             | 600                        | 13                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 1,4-Dichlorobenzene                             | 75                         | 17                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 1,4-Dioxane                                     | 7.2                        | 280                     | µg/L       | 140                                     | 30                                      | NA                                      | <1                                      | <1                                      | 2                                       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | 3                                       |
| 1,1,1-Trichloroethane                           | 200                        | 89                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 2-Hexanone                                      | 1,000                      | --                      | µg/L       | NA                                      | <10                                     | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 1,1,2,2-Tetrachloroethane                       | 8.5                        | 78                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Acetone                                         | 730                        | 1,700                   | µg/L       | NA                                      | <10                                     | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 1,1,2-Trichloroethane                           | 5                          | 330                     | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Bromodichloromethane                            | 80                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 1,1-Dichloroethane                              | 880                        | 740                     | µg/L       | NA                                      | 42                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Bromoform                                       | 80                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 1,1-Dichloroethene                              | 7                          | 130                     | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Bromomethane (Methyl bromide)                   | 10                         | 5                       | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 1,2-Dichloroethane                              | 5                          | 360                     | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Carbon disulfide                                | 800                        | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Carbon tetrachloride                            | 5                          | 38                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| cis-1,2-Dichloroethene                          | 70                         | 620                     | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Chlorobenzene                                   | 100                        | 25                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                   | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Chloroform (Trichloromethane)                   | 80                         | 350                     | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Trichloroethene                                 | 5                          | 200                     | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Chloromethane (Methyl chloride)                 | 260                        | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Tetrachloroethene                               | 5                          | 60                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| cis-1,3-Dichloropropene                         | --                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Vinyl chloride                                  | 2                          | 13                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 2-Methylnaphthalene                             | 260                        | 19                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Chloroethane                                    | 430                        | 1,100                   | µg/L       | NA                                      | 3                                       | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Benzene                                         | 5                          | 200                     | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Methyl acetate                                  | --                         | --                      | µg/L       | NA                                      | <10                                     | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Ethylbenzene                                    | 74                         | 18                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Methylene chloride                              | 5                          | 1,500                   | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Styrene                                         | 100                        | 80                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Toluene                                         | 790                        | 270                     | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| trans-1,3-Dichloropropene                       | --                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                   | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Naphthalene                                     | 520                        | 11                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| Trifluorotrichloroethane (Freon 113)            | 170,000                    | 32                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                   | µg/L       | NA                                      | <10                                     | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                      | µg/L       | NA                                      | <10                                     | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      |

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2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units | MW-14-61<br>12/06/19 | MW-14-62<br>06/06/19 | MW-14-62<br>12/04/19 | MW-14-63<br>06/12/19 | MW-14-64<br>06/06/19 | MW-14-64<br>08/28/19 | MW-14-65<br>06/11/19 | MW-14-67<br>06/06/19 | MW-14-67<br>08/27/19 | MW-14-67<br>12/03/19 | MW-14-70<br>06/06/19 | MW-14-70<br>08/27/19 | MW-14-70<br>12/03/19 | MW-15-71<br>06/06/19 |
|-------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                         |       |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |
| 1,2-Dichloropropane                                                                       | 5                          | 230                     | µg/L  | NA                   | <1                   | NA                   | NA                   | NA                   | NA                   | <1                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                      | µg/L  | NA                   | <1                   | NA                   | NA                   | NA                   | NA                   | <1                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Cyclohexane                                                                               | --                         | --                      | µg/L  | NA                   | <1                   | NA                   | NA                   | NA                   | NA                   | <1                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Methyl cyclohexane                                                                        | --                         | --                      | µg/L  | NA                   | <1                   | NA                   | NA                   | NA                   | NA                   | <1                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Dibromochloromethane                                                                      | 80                         | --                      | µg/L  | NA                   | <1                   | NA                   | NA                   | NA                   | NA                   | <1                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Isopropyl benzene                                                                         | 800                        | 28                      | µg/L  | NA                   | <1                   | NA                   | NA                   | NA                   | NA                   | <1                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| o-Xylene                                                                                  | --                         | --                      | µg/L  | NA                   | <1                   | NA                   | NA                   | NA                   | NA                   | <1                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| m&p-Xylene                                                                                | --                         | --                      | µg/L  | NA                   | <2                   | NA                   | NA                   | NA                   | NA                   | <2                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Total Xylenes                                                                             | --                         | --                      | µg/L  | NA                   | <2                   | NA                   | NA                   | NA                   | NA                   | <2                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Hexachloroethane                                                                          | 7.3                        | 6.7                     | µg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                         |       |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |
| 1,4-Dioxane                                                                               | 7.2                        | 280                     | µg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                         |       |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |
| Antimony                                                                                  | 0.006                      | 0.13                    | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Arsenic                                                                                   | 0.01                       | 0.01                    | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Barium                                                                                    | 2                          | --                      | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Boron                                                                                     | 0.5                        | 7.2                     | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Cadmium                                                                                   | 0.005                      | --                      | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Chromium III                                                                              | 0.1                        | --                      | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                   | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Cobalt                                                                                    | 0.04                       | 0.1                     | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Copper                                                                                    | 1                          | --                      | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Lead                                                                                      | 0.004                      | --                      | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Manganese                                                                                 | 0.05                       | --                      | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Mercury                                                                                   | 0.002                      | 0.0000013               | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Nickel                                                                                    | 0.1                        | 0.12                    | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Selenium                                                                                  | 0.05                       | 0.005                   | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Silver                                                                                    | 0.034                      | 0.0002                  | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Vanadium                                                                                  | 0.0045                     | 0.027                   | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Zinc                                                                                      | 2.4                        | 0.26                    | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                         |       |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                    | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Chromium (dissolved)                                                                      | --                         | 0.16                    | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Copper (dissolved)                                                                        | 1                          | 0.02                    | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                   | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                    | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                   | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                         |       |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |
| Nitrate (as N)                                                                            | 10                         | --                      | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Phosphorus                                                                                | 63                         | --                      | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Sulfate                                                                                   | 250                        | --                      | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Total dissolved solids (TDS)                                                              | 500                        | --                      | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                      | mg/L  | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   | NA                   |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                         |       |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |
| 4:2 FTS                                                                                   | --                         | --                      | ng/L  | <9.5                 | <8                   | <7.4                 | NA                   | NA                   | NA                   | NA                   | <8 [<8]              | <7.4                 | <7.7 [<8]            | <8                   | <7.4                 | <8                   | NA                   |
| 6:2 FTS                                                                                   | --                         | --                      | ng/L  | <9.5                 | 49.3                 | 43.7                 | NA                   | NA                   | NA                   | NA                   | <8 [<8]              | <7.4                 | <7.7 [<8]            | <8                   | <7.4                 | <8                   | NA                   |
| 8:2 FTS                                                                                   | --                         | --                      | ng/L  | <9.5                 | 6.74 J               | 5.61 J               | NA                   | NA                   | NA                   | NA                   | <8 [<8]              | <7.4                 | <7.7 [<8]            | <8                   | <7.4                 | <8                   | NA                   |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                      | ng/L  | <24                  | <20                  | <19                  | NA                   | NA                   | NA                   | NA                   | <20 [<20]            | <19                  | <19 [<20]            | <20                  | <19                  | <20                  | NA                   |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                      | ng/L  | <24                  | <20                  | <19                  | NA                   | NA                   | NA                   | NA                   | <20 [<20]            | <19                  | <19 [<20]            | <20                  | <19                  | <20                  | NA                   |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                      | ng/L  | <4.8                 | 2.36 J               | 1.92 J               | NA                   | NA                   | NA                   | NA                   | 2.28 J [2.45 J]      | 1.11 J               | 3.95 [2.55 J]        | 5.53                 | 2.97 J               | 4.42                 | NA                   |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                      | ng/L  | 2.53 J               | 54.1                 | 21                   | NA                   | NA                   | NA                   | NA                   | 59.4 [63.1]          | 41.1                 | 39.2 [41.9]          | 56.2                 | 57.4                 | 49.5                 | NA                   |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                      | ng/L  | <4.8                 | <4                   | <3.7                 | NA                   | NA                   | NA                   | NA                   | <4 [<4]              | <3.7                 | <3.8 [<4]            | <4                   | <3.7                 | <4                   | NA                   |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                      | ng/L  | <4.8                 | 2.75 J               | 2.64 J               | NA                   | NA                   | NA                   | NA                   | 4.42 [4.6]           | 2.16 J               | 3.25 J [3.38 J]      | <4                   | <3.7                 | <4                   | NA                   |
| Perfluorododecanoic acid (PFDoA)                                                          | --                         | --                      | ng/L  | <4.8                 | <4                   | <3.7                 | NA                   | NA                   | NA                   | NA                   | <4 [<4]              | <3.7                 | <3.8 [<4]            | <4                   | <3.7                 | <4                   | NA                   |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                     | --                         | --                      | ng/L  | <4.8                 | 2.55 J               | 2.34 J               | NA                   | NA                   | NA                   | NA                   | <4 [<4]              | <3.7                 | <3.8 [<4]            | <4                   | <3.7                 | <4                   | NA                   |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                      | ng/L  | <4.8                 | 24.6                 | 19.8                 | NA                   | NA                   | NA                   | NA                   | 27.3 [28.8]          | 27.1                 | 23.9 [25.2]          | 74.1                 | 47.6                 | 51.7                 | NA                   |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                      | ng/L  | <4.8                 | 8.81                 | 7                    | NA                   | NA                   | NA                   | NA                   | <4 [<4]              | <3.7                 | <3.8 [<4]            | 2.54 J               | <3.7                 | 2.35 J               | NA                   |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                      | ng/L  | <4.8                 | 22.2                 | 16.1                 | NA                   | NA                   | NA                   | NA                   | 70.5 [76.5]          | 70.1                 | 61.9 [67.5]          | 110                  | 103                  | 93.3                 | NA                   |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                      | ng/L  | <4.8                 | <4                   | <3.7                 | NA                   | NA                   | NA                   | NA                   | <4 [<4]              | <3.7                 | <3.8 [<4]            | <4                   | <3.7                 | <4                   | NA                   |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                      | ng/L  | <4.8                 | 10.5                 | 7.54                 | NA                   | NA                   | NA                   | NA                   | 1.96 J [2.11 J]      | 1.08 J               | 1.07 J [1.16 J]      | <4                   | <3.7                 | <4                   | NA                   |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                      | ng/L  | <4.8                 | 8.04                 | 6.91                 | NA                   | NA                   | NA                   | NA                   | <4 [<4]              | <3.7                 | <3.8 [<4]            | <4                   | <3.7                 | <4                   | NA                   |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                      | ng/L  | <4.8                 | 86.8                 | 70                   | NA                   | NA                   | NA                   | NA                   | 11 [12.2]            | 5.37                 | 6.31 [6.24]          | <4                   | <3.7                 | <4                   | NA                   |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                  | ng/L  | 1.94 J               | 73.9                 | 55.2                 | NA                   | NA                   | NA                   | NA                   | 19.4 [21.1]          | 10.3                 | 11.5 [11.2]          | 38.4                 | 15.9                 | 29.5                 | NA                   |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                      | ng/L  | <4.8                 | <4                   | 0.971 J              | NA                   | NA                   | NA                   | NA                   | <4 [<4]              | <3.7                 | <3.8 [<4]            | <4                   | <3.7                 | 1.03 J               | NA                   |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                      | ng/L  | <4.8                 | 20.3                 | 14.3                 | NA                   | NA                   | NA                   | NA                   | 65.8 [70.5]          | 54.3                 | 51.6 [62]            | 158                  | 185                  | 147                  | NA                   |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                      | ng/L  | <4.8                 | <4                   | <3.7                 | NA                   | NA                   | NA                   | NA                   | <4 [<4]              | <3.7                 | <3.8 [<4]            | <4                   | <3.7                 | <4                   | NA                   |
| Perfluorotridecanoic Acid (PFTriA)                                                        | --                         | --                      | ng/L  | <4.8                 | <4                   | <3.7                 | NA                   | NA                   | NA                   | NA                   | <4 [<4]              | <3.7                 | <3.8 [<4]            | <4                   | <3.7                 | <4                   | NA                   |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                      | ng/L  | <4.8                 | <4                   | <3.7                 | NA                   | NA                   | NA                   | NA                   | <4 [<4]              | <3.7                 | <3.8 [<4]            | <4                   | <3.7                 | <4                   | NA                   |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                      | ng/L  | 2.53 J               | 212.25 J             | 149.83 J             | NA                   | NA                   | NA                   | NA                   | 231.66 J [248.06 J]  | 196.95 J             | 184.87 [203.69 J]    | 406.37 J             | 395.97 J             | 349.30 J             | NA                   |
| Combined PFOS and PFOA                                                                    | 70                         | --                      | ng/L  | 1.94 J               | 160.7                | 125.2                | NA                   | NA                   | NA                   | NA                   | 30.4 [33.3]          | 15.67                | 17.81 [17.44]        | 38.4                 | 15.9                 | 29.5                 | NA                   |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units      | MW-15-72<br>02/27/19<br>MW-15-72_022719 | MW-15-72<br>06/13/19<br>MW-15-72_061319 | MW-15-72<br>12/05/19<br>MW-15-72_120519 | MW-15-73<br>06/13/19<br>MW-15-73_061319 | MW-16-74<br>06/05/19<br>MW-16-74_060519 | MW-16-74<br>12/05/19<br>MW-16-74_120519 | MW-16-75<br>02/27/19<br>MW-16-75_022719 | MW-16-75<br>06/05/19<br>MW-16-75_060519 | MW-16-75<br>12/05/19<br>MW-16-75_120519 | MW-16-76<br>06/10/19<br>MW-16-76_061019 | MW-16-77<br>02/27/19<br>MW-16-77_022719 | MW-16-77<br>06/06/19<br>MW-16-77_060619 | MW-16-77<br>12/05/19<br>MW-16-77_120519 | MW-16-78<br>06/05/19<br>MW-16-78_060519 |
|-------------------------------------------------|----------------------------|-------------------------|------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Field                                           |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Conductivity                                    | --                         | --                      | mS/cm      | 1.1                                     | 1.2                                     | 1.398                                   | 2.54                                    | 2.37                                    | 2.46                                    | 1.99                                    | 2.16                                    | 2.19                                    | 1.84                                    | 1.74                                    | 1.95                                    | 2.03                                    | 1.92                                    |
| Dissolved oxygen (DO), field                    | --                         | --                      | mg/L       | 0.68                                    | 0.54                                    | 0.24                                    | 0.48                                    | 0.15                                    | 0.26                                    | 1.94                                    | 0.11                                    | 0.57                                    | 0.52                                    | 1.22                                    | 0.33                                    | 6.54                                    | 0.16                                    |
| Oxidation reduction potential (ORP), field      | --                         | --                      | millivolts | 41                                      | -91.9                                   | -72                                     | -29.8                                   | -45.9                                   | -70.9                                   | 30                                      | -42.3                                   | -102.7                                  | -67.9                                   | 40.9                                    | 4.1                                     | -53.8                                   | -35.1                                   |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0              | s.u.       | 7.13                                    | 7.02                                    | 7.1                                     | 6.73                                    | 6.96                                    | 7.06                                    | 7.19                                    | 6.99                                    | 7.13                                    | 7.14                                    | 7.27                                    | 7.07                                    | 7.4                                     | 6.89                                    |
| Temperature, field                              | --                         | --                      | Deg C      | 10.2                                    | 14.1                                    | 13.2                                    | 12.6                                    | 18.8                                    | 11.1                                    | 6.2                                     | 16.2                                    | 11.3                                    | 13.3                                    | 4.8                                     | 15.6                                    | 10.7                                    | 16.1                                    |
| Turbidity (field)                               | --                         | --                      | NTU        | 8.69                                    | 5                                       | 44                                      | 4.99                                    | 8.95                                    | 2.4                                     | 8.12                                    | 43.1                                    | 7.07                                    | 0.32                                    | 8.02                                    | 0.25                                    | 13.3                                    | 0.21                                    |
| Volatile Organics (via EPA Method 537 Modified) |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| 1,2,3-Trichlorobenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      |
| 1,2,3-Trichloropropane                          | 42                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| 1,2,3-Trimethylbenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| Acrylonitrile                                   | 2.6                        | 2                       | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <2 [<2]                                 | NA                                      | NA                                      | <2                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <2                                      |
| Bromobenzene                                    | 18                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| Chlorobromomethane                              | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| Cymene (p-Isopropyltoluene)                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      |
| Dibromomethane                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      |
| Ethyl ether                                     | 10                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <10 [<10]                               | NA                                      | NA                                      | <10                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     |
| Iodomethane                                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| N-Butylbenzene                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| N-Propylbenzene                                 | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| tert-Butylbenzene                               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| Tetrahydrofuran                                 | 95                         | 11,000                  | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <90 [<90]                               | NA                                      | NA                                      | <90                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <90                                     |
| trans-1,4-Dichloro-2-butene                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <5 [<5]                                 | NA                                      | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| 1,2-Dichlorobenzene                             | 600                        | 13                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| 1,4-Dichlorobenzene                             | 75                         | 17                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| 1,4-Dioxane                                     | 7.2                        | 280                     | µg/L       | 30 YI                                   | 128                                     | 310 Y [310 Y]                           | 9                                       | 2 [1]                                   | 2                                       | NA                                      | <1                                      | 2                                       | <1                                      | NA                                      | <1                                      | <1                                      | <1                                      |
| 1,1,1-Trichloroethane                           | 200                        | 89                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| 2-Hexanone                                      | 1,000                      | --                      | µg/L       | NA                                      | <10                                     | NA                                      | <10                                     | <50 [<50]                               | NA                                      | NA                                      | <50                                     | NA                                      | <10                                     | NA                                      | <10                                     | NA                                      | <50                                     |
| 1,1,2,2-Tetrachloroethane                       | 8.5                        | 78                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Acetone                                         | 730                        | 1,700                   | µg/L       | NA                                      | <10                                     | NA                                      | <10                                     | <50 [<50]                               | NA                                      | NA                                      | <50                                     | NA                                      | <10                                     | NA                                      | <10                                     | NA                                      | <50                                     |
| 1,1,2-Trichloroethane                           | 5                          | 330                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Bromodichloromethane                            | 80                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| 1,1-Dichloroethane                              | 880                        | 740                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Bromoform                                       | 80                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| 1,1-Dichloroethene                              | 7                          | 130                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Bromomethane (Methyl bromide)                   | 10                         | 5                       | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <5 [<5]                                 | NA                                      | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| 1,2-Dichloroethane                              | 5                          | 360                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Carbon disulfide                                | 800                        | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <5 [<5]                                 | NA                                      | NA                                      | <5                                      | NA                                      | 1                                       | NA                                      | <1                                      | NA                                      | <5                                      |
| Carbon tetrachloride                            | 5                          | 38                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| cis-1,2-Dichloroethene                          | 70                         | 620                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Chlorobenzene                                   | 100                        | 25                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                   | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Chloroform (Trichloromethane)                   | 80                         | 350                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Trichloroethene                                 | 5                          | 200                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Chloromethane (Methyl chloride)                 | 260                        | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <5 [<5]                                 | NA                                      | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| Tetrachloroethene                               | 5                          | 60                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| cis-1,3-Dichloropropene                         | --                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Vinyl chloride                                  | 2                          | 13                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| 2-Methylnaphthalene                             | 260                        | 19                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      |
| Chloroethane                                    | 430                        | 1,100                   | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <5 [<5]                                 | NA                                      | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <5 [<5]                                 | NA                                      | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| Benzene                                         | 5                          | 200                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Methyl acetate                                  | --                         | --                      | µg/L       | NA                                      | <10                                     | NA                                      | <10                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | NA                                      | <10                                     | NA                                      | NA                                      |
| Ethylbenzene                                    | 74                         | 18                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Methylene chloride                              | 5                          | 1,500                   | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <5 [<5]                                 | NA                                      | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| Styrene                                         | 100                        | 80                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Toluene                                         | 790                        | 270                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| trans-1,3-Dichloropropene                       | --                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                   | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <5 [<5]                                 | NA                                      | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Naphthalene                                     | 520                        | 11                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      |
| Trifluorotrchloroethane (Freon 113)             | 170,000                    | 32                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                   | µg/L       | NA                                      | <10                                     | NA                                      | <10                                     | <25 [<25]                               | NA                                      | NA                                      | <25                                     | NA                                      | <10                                     | NA                                      | <10                                     | NA                                      | <25                                     |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                      | µg/L       | NA                                      | <10                                     | NA                                      | <10                                     | <50 [<50]                               | NA                                      | NA                                      | <50                                     | NA                                      | <10                                     | NA                                      | <10                                     | NA                                      | <50                                     |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | <5 [<5]                                 | NA                                      | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |

See notes on last page.



Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units | MW-15-72<br>02/27/19<br>MW-15-72_022719 | MW-15-72<br>06/13/19<br>MW-15-72_061319 | MW-15-72<br>12/05/19<br>MW-15-72_120519 | MW-15-73<br>06/13/19<br>MW-15-73_061319 | MW-16-74<br>06/05/19<br>MW-16-74_060519 | MW-16-74<br>12/05/19<br>MW-16-74_120519 | MW-16-75<br>02/27/19<br>MW-16-75_022719 | MW-16-75<br>06/05/19<br>MW-16-75_060519 | MW-16-75<br>12/05/19<br>MW-16-75_120519 | MW-16-76<br>06/10/19<br>MW-16-76_061019 | MW-16-77<br>02/27/19<br>MW-16-77_022719 | MW-16-77<br>06/06/19<br>MW-16-77_060619 | MW-16-77<br>12/05/19<br>MW-16-77_120519 | MW-16-78<br>06/05/19<br>MW-16-78_060519 |
|-------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,2-Dichloropropane                                                                       | 5                          | 230                     | µg/L  | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                      | µg/L  | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Cyclohexane                                                                               | --                         | --                      | µg/L  | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Methyl cyclohexane                                                                        | --                         | --                      | µg/L  | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Dibromochloromethane                                                                      | 80                         | --                      | µg/L  | NA                                      | <1                                      | NA                                      | <1                                      | <5 [<5]                                 | NA                                      | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| Isopropyl benzene                                                                         | 800                        | 28                      | µg/L  | NA                                      | <1                                      | NA                                      | <1                                      | <5 [<5]                                 | NA                                      | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| o-Xylene                                                                                  | --                         | --                      | µg/L  | NA                                      | <1                                      | NA                                      | <1                                      | <1 [<1]                                 | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| m&p-Xylene                                                                                | --                         | --                      | µg/L  | NA                                      | <2                                      | NA                                      | <2                                      | <2 [<2]                                 | NA                                      | NA                                      | <2                                      | NA                                      | <2                                      | NA                                      | <2                                      | NA                                      | <2                                      |
| Total Xylenes                                                                             | --                         | --                      | µg/L  | NA                                      | <2                                      | NA                                      | <2                                      | <2 [<2]                                 | NA                                      | NA                                      | <2                                      | NA                                      | <2                                      | NA                                      | <2                                      | NA                                      | <2                                      |
| Hexachloroethane                                                                          | 7.3                        | 6.7                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,4-Dioxane                                                                               | 7.2                        | 280                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Antimony                                                                                  | 0.006                      | 0.13                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Arsenic                                                                                   | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Barium                                                                                    | 2                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Boron                                                                                     | 0.5                        | 7.2                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cadmium                                                                                   | 0.005                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium III                                                                              | 0.1                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cobalt                                                                                    | 0.04                       | 0.1                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Copper                                                                                    | 1                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Lead                                                                                      | 0.004                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Manganese                                                                                 | 0.05                       | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Mercury                                                                                   | 0.002                      | 0.0000013               | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Nickel                                                                                    | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Selenium                                                                                  | 0.05                       | 0.005                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Silver                                                                                    | 0.034                      | 0.0002                  | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Vanadium                                                                                  | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Zinc                                                                                      | 2.4                        | 0.26                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium (dissolved)                                                                      | --                         | 0.16                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Copper (dissolved)                                                                        | 1                          | 0.02                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Nitrate (as N)                                                                            | 10                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <0.5                                    | NA                                      | NA                                      | NA                                      | <0.5                                    | NA                                      | NA                                      | NA                                      |
| Phosphorus                                                                                | 63                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Sulfate                                                                                   | 250                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total dissolved solids (TDS)                                                              | 500                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 4:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | <8                                      | <11 [<11]                               | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 6:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | <8                                      | <11 [<11]                               | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 8:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | <8                                      | <11 [<11]                               | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                      | ng/L  | NA                                      | <20                                     | <26 [<26]                               | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                      | ng/L  | NA                                      | <20                                     | <26 [<26]                               | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                      | ng/L  | NA                                      | <4                                      | <5.3 [<5.3]                             | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                      | ng/L  | NA                                      | 5.02 J                                  | 3.8 J [5.33 J]                          | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                      | ng/L  | NA                                      | <4                                      | <5.3 [<5.3]                             | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                      | ng/L  | NA                                      | <4                                      | <5.3 [<5.3]                             | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorododecanoic acid (PFDoA)                                                          | --                         | --                      | ng/L  | NA                                      | <4                                      | <5.3 [<5.3]                             | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                     | --                         | --                      | ng/L  | NA                                      | <4                                      | <5.3 [<5.3]                             | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                      | ng/L  | NA                                      | <4                                      | <5.3 [<5.3]                             | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                      | ng/L  | NA                                      | <4                                      | <5.3 [<5.3]                             | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                      | ng/L  | NA                                      | <4                                      | <5.3 [<5.3]                             | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                      | ng/L  | NA                                      | <4                                      | <5.3 [<5.3]                             | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                      | ng/L  | NA                                      | <4                                      | <5.3 [<5.3]                             | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                      | ng/L  | NA                                      | <4                                      | <5.3 [<5.3]                             | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                      | ng/L  | NA                                      | <4                                      | <5.3 [<5.3]                             | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                  | ng/L  | NA                                      | <4                                      | <5.3 [<5.3]                             | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                      | ng/L  | NA                                      | <4                                      | <5.3 [<5.3]                             | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                      | ng/L  | NA                                      | 5.33                                    | 2.58 J [2.67 J]                         | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                      | ng/L  | NA                                      | <4                                      | <5.3 [<5.3]                             | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorotridecanoic Acid (PFTriA)                                                        | --                         | --                      | ng/L  | NA                                      | <4                                      | <5.3 [<5.3]                             | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                      | ng/L  | NA                                      | <4                                      | <5.3 [<26]                              | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                      | ng/L  | NA                                      | 10.35 J                                 | 6.38 J [8.00 J]                         | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Combined PFOS and PFOA                                                                    | 70                         | --                      | ng/L  | NA                                      | <4                                      | <5.3 [<5.3]                             | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |

See notes on last page.



Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units      | MW-16-78<br>12/04/19<br>MW-16-78 120419 | MW-16-79<br>06/04/19<br>MW-16-79 060419 | MW-16-79<br>12/04/19<br>MW-16-79 120419 | MW-16-80<br>06/12/19<br>MW-16-80 061219 | MW-16-80<br>12/06/19<br>MW-16-80 120619 | MW-16-81<br>02/26/19<br>MW-16-81 022619 | MW-16-81<br>06/13/19<br>MW-16-81 061319 | MW-16-81<br>12/06/19<br>MW-16-81 120619 | MW-16-82<br>02/26/19<br>MW-16-82 022619 | MW-16-82<br>06/07/19<br>MW-16-82 060719 | MW-16-82<br>12/04/19<br>MW-16-82 120419 | MW-16-83<br>06/10/19<br>MW-16-83 061019 | MW-16-84<br>02/26/19<br>MW-16-84 022619 | MW-16-84<br>06/04/19<br>MW-16-84 060419 |
|-------------------------------------------------|----------------------------|-------------------------|------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Field                                           |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Conductivity                                    | --                         | --                      | mS/cm      | 1.91                                    | 1.1                                     | 1.18                                    | 2.68                                    | 2.62                                    | 2.36                                    | 1.56                                    | 1.818                                   | 1.08                                    | 1.23                                    | 1.23                                    | 4.18                                    | 1.15                                    | 1.230                                   |
| Dissolved oxygen (DO), field                    | --                         | --                      | mg/L       | 0.2                                     | 0.86                                    | 1.1                                     | 0.32                                    | 0.33                                    | 4.14                                    | 0.27                                    | 0.16                                    | 1.1                                     | 0.27                                    | 0.32                                    | 0.29                                    | 7.19                                    | 7.89                                    |
| Oxidation reduction potential (ORP), field      | --                         | --                      | millivolts | -73.9                                   | 51.5                                    | -64.8                                   | -56                                     | -72.8                                   | 25.9                                    | -77.6                                   | -87.2                                   | -11.7                                   | -54                                     | -102.2                                  | -15.9                                   | 8.8                                     | 60.1                                    |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0              | s.u.       | 7.02                                    | 7.12                                    | 7.24                                    | 6.86                                    | 6.88                                    | 6.97                                    | 6.97                                    | 7.02                                    | 7.27                                    | 7.04                                    | 7.17                                    | 7                                       | 7.33                                    | 8                                       |
| Temperature, field                              | --                         | --                      | Deg C      | 12                                      | 20                                      | 10.2                                    | 14                                      | 10.7                                    | 7.4                                     | 14.3                                    | 13.3                                    | 9                                       | 17.9                                    | 11.7                                    | 16.3                                    | 5                                       | 17.3                                    |
| Turbidity (field)                               | --                         | --                      | NTU        | 0.02                                    | 20.3                                    | 25.5                                    | 14.3                                    | 2.98                                    | 8.59                                    | 3.73                                    | 4.96                                    | 8.34                                    | 0.02                                    | 0.02                                    | 0.02                                    | 8.19                                    | 9.71                                    |
| Volatile Organics (via EPA Method 537 Modified) |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| 1,2,3-Trichlorobenzene                          | --                         | --                      | µg/L       | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      |
| 1,2,3-Trichloropropane                          | 42                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| 1,2,3-Trimethylbenzene                          | --                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| Acrylonitrile                                   | 2.6                        | 2                       | µg/L       | NA                                      | <2                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <2                                      |
| Bromobenzene                                    | 18                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| Chlorobromomethane                              | --                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| Cymene (p-Isopropyltoluene)                     | --                         | --                      | µg/L       | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      |
| Dibromomethane                                  | 80                         | --                      | µg/L       | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      |
| Ethyl ether                                     | 10                         | --                      | µg/L       | NA                                      | <10                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     |
| Iodomethane                                     | --                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| N-Butylbenzene                                  | 80                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| N-Propylbenzene                                 | 80                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| tert-Butylbenzene                               | 80                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| Tetrahydrofuran                                 | 95                         | 11,000                  | µg/L       | NA                                      | <90                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <90                                     |
| trans-1,4-Dichloro-2-butene                     | --                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                      | µg/L       | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| 1,2-Dichlorobenzene                             | 600                        | 13                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| 1,4-Dichlorobenzene                             | 75                         | 17                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| 1,4-Dioxane                                     | 7.2                        | 280                     | µg/L       | <1                                      | <1                                      | 2                                       | 23                                      | 24                                      | 1,300 Y                                 | 3,200 Y                                 | 2,500 Y                                 | <1                                      | <1                                      | <1                                      | <1                                      | 55                                      | 47                                      |
| 1,1,1-Trichloroethane                           | 200                        | 89                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| 2-Hexanone                                      | 1,000                      | --                      | µg/L       | NA                                      | <50                                     | NA                                      | <10                                     | NA                                      | NA                                      | <10                                     | NA                                      | NA                                      | <10                                     | NA                                      | <10                                     | NA                                      | <50                                     |
| 1,1,1,2,2-Tetrachloroethane                     | 8.5                        | 78                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Acetone                                         | 730                        | 1,700                   | µg/L       | NA                                      | <50                                     | NA                                      | <10                                     | NA                                      | NA                                      | <10                                     | NA                                      | NA                                      | 17                                      | NA                                      | <10                                     | NA                                      | <50                                     |
| 1,1,2-Trichloroethane                           | 5                          | 330                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Bromodichloromethane                            | 80                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| 1,1-Dichloroethane                              | 880                        | 740                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Bromoform                                       | 80                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| 1,1-Dichloroethene                              | 7                          | 130                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Bromomethane (Methyl bromide)                   | 10                         | 5                       | µg/L       | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| 1,2-Dichloroethane                              | 5                          | 360                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Carbon disulfide                                | 800                        | --                      | µg/L       | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| Carbon tetrachloride                            | 5                          | 38                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| cis-1,2-Dichloroethene                          | 70                         | 620                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Chlorobenzene                                   | 100                        | 25                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                   | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Chloroform (Trichloromethane)                   | 80                         | 350                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Trichloroethene                                 | 5                          | 200                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Chloromethane (Methyl chloride)                 | 260                        | --                      | µg/L       | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| Tetrachloroethene                               | 5                          | 60                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| cis-1,3-Dichloropropene                         | --                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Vinyl chloride                                  | 2                          | 13                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| 2-Methylnaphthalene                             | 260                        | 19                      | µg/L       | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      |
| Chloroethane                                    | 430                        | 1,100                   | µg/L       | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                      | µg/L       | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| Benzene                                         | 5                          | 200                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Methyl acetate                                  | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | <10                                     | NA                                      | NA                                      | <10                                     | NA                                      | NA                                      | <10                                     | NA                                      | <10                                     | NA                                      | NA                                      |
| Ethylbenzene                                    | 74                         | 18                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Methylene chloride                              | 5                          | 1,500                   | µg/L       | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| Styrene                                         | 100                        | 80                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Toluene                                         | 790                        | 270                     | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| trans-1,3-Dichloropropene                       | --                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                   | µg/L       | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Naphthalene                                     | 520                        | 11                      | µg/L       | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      |
| Trifluorotrichloroethane (Freon 113)            | 170,000                    | 32                      | µg/L       | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                   | µg/L       | NA                                      | <25                                     | NA                                      | <10                                     | NA                                      | NA                                      | <10                                     | NA                                      | NA                                      | <10                                     | NA                                      | <10                                     | NA                                      | <25                                     |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                      | µg/L       | NA                                      | <50                                     | NA                                      | <10                                     | NA                                      | NA                                      | <10                                     | NA                                      | NA                                      | <10                                     | NA                                      | <10                                     | NA                                      | <50                                     |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                      | µg/L       | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                      | µg/L       | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units | MW-16-78<br>12/04/19<br>MW-16-78_120419 | MW-16-79<br>06/04/19<br>MW-16-79_060419 | MW-16-79<br>12/04/19<br>MW-16-79_120419 | MW-16-80<br>06/12/19<br>MW-16-80_061219 | MW-16-80<br>12/06/19<br>MW-16-80_120619 | MW-16-81<br>02/26/19<br>MW-16-81_022619 | MW-16-81<br>06/13/19<br>MW-16-81_061319 | MW-16-81<br>12/06/19<br>MW-16-81_120619 | MW-16-82<br>02/26/19<br>MW-16-82_022619 | MW-16-82<br>06/07/19<br>MW-16-82_060719 | MW-16-82<br>12/04/19<br>MW-16-82_120419 | MW-16-83<br>06/10/19<br>MW-16-83_061019 | MW-16-84<br>02/26/19<br>MW-16-84_022619 | MW-16-84<br>06/04/19<br>MW-16-84_060419 |
|-------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,2-Dichloropropane                                                                       | 5                          | 230                     | µg/L  | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                      | µg/L  | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| Cyclohexane                                                                               | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Methyl cyclohexane                                                                        | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      |
| Dibromochloromethane                                                                      | 80                         | --                      | µg/L  | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| Isopropyl benzene                                                                         | 800                        | 28                      | µg/L  | NA                                      | <5                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <5                                      |
| o-Xylene                                                                                  | --                         | --                      | µg/L  | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | NA                                      | <1                                      |
| m&p-Xylene                                                                                | --                         | --                      | µg/L  | NA                                      | <2                                      | NA                                      | <2                                      | NA                                      | NA                                      | <2                                      | NA                                      | NA                                      | <2                                      | NA                                      | <2                                      | NA                                      | <2                                      |
| Total Xylenes                                                                             | --                         | --                      | µg/L  | NA                                      | <2                                      | NA                                      | <2                                      | NA                                      | NA                                      | <2                                      | NA                                      | NA                                      | <2                                      | NA                                      | <2                                      | NA                                      | <2                                      |
| Hexachloroethane                                                                          | 7.3                        | 6.7                     | µg/L  | NA                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,4-Dioxane                                                                               | 7.2                        | 280                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Antimony                                                                                  | 0.006                      | 0.13                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Arsenic                                                                                   | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Barium                                                                                    | 2                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Boron                                                                                     | 0.5                        | 7.2                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cadmium                                                                                   | 0.005                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium III                                                                              | 0.1                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cobalt                                                                                    | 0.04                       | 0.1                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Copper                                                                                    | 1                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Lead                                                                                      | 0.004                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Manganese                                                                                 | 0.05                       | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Mercury                                                                                   | 0.002                      | 0.0000013               | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Nickel                                                                                    | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Selenium                                                                                  | 0.05                       | 0.005                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Silver                                                                                    | 0.034                      | 0.0002                  | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Vanadium                                                                                  | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Zinc                                                                                      | 2.4                        | 0.26                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium (dissolved)                                                                      | --                         | 0.16                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Copper (dissolved)                                                                        | 1                          | 0.02                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Nitrate (as N)                                                                            | 10                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Phosphorus                                                                                | 63                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Sulfate                                                                                   | 250                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total dissolved solids (TDS)                                                              | 500                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 4:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <8                                      | <9.5                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 6:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <8                                      | <9.5                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 8:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <8                                      | <9.5                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <20                                     | <24                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <20                                     | <24                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 2.96 J                                  | 3.41 J                                  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorododecanoic acid (PFDoA)                                                          | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                     | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 2.75 J                                  | 3.33 J                                  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                  | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 6.15                                    | 4.83                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorotridecanoic Acid (PFTriA)                                                        | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 11.86 J                                 | 11.57 J                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Combined PFOS and PFOA                                                                    | 70                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units      | MW-16-84<br>12/03/19<br>MW-16-84_120319 | MW-16-85<br>06/04/19<br>MW-16-85_060419 | MW-16-85<br>12/03/19<br>MW-16-85_120319 | MW-17-86<br>06/04/19<br>MW-17-86_060419 | MW-17-86<br>12/03/19<br>MW-17-86_120319 | MW-17-87<br>06/10/19<br>MW-17-87_061019 | MW-18-88<br>06/07/19<br>MW-18-88_060719 | MW-18-88<br>08/29/19<br>MW-18-88_082919 | MW-18-88<br>12/05/19<br>MW-18-88_120519 | MW-18-89<br>06/07/19<br>MW-18-89_060719 | MW-18-89<br>08/28/19<br>MW-18-89_20190828 | MW-18-89<br>12/05/19<br>MW-18-89_120519 | MW-18-90<br>06/07/19<br>MW-18-90_060719 | MW-18-90<br>08/28/19<br>MW-18-90_20190828 |
|-------------------------------------------------|----------------------------|-------------------------|------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|
| Field                                           |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                           |
| Conductivity                                    | --                         | --                      | mS/cm      | NA                                      | 1.01                                    | NA                                      | 1.6                                     | 1.67                                    | 3.5                                     | 0.53                                    | NA                                      | 0.59                                    | 0.457                                   | NA                                        | NA                                      | 1.96                                    | NA                                        |
| Dissolved oxygen (DO), field                    | --                         | --                      | mg/L       | NA                                      | 4.49                                    | NA                                      | 0.23                                    | 0.18                                    | 0.03                                    | 0.13                                    | NA                                      | 0.28                                    | 0.1                                     | NA                                        | NA                                      | 0.07                                    | NA                                        |
| Oxidation reduction potential (ORP), field      | --                         | --                      | millivolts | NA                                      | 97.3                                    | NA                                      | 93.5                                    | -48.5                                   | -230.1                                  | 218.8                                   | NA                                      | 50.2                                    | 29.5                                    | NA                                        | NA                                      | -281.7                                  | NA                                        |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0              | s.u.       | NA                                      | 7.88                                    | NA                                      | 6.94                                    | 6.9                                     | 7.64                                    | 7.11                                    | NA                                      | 7.04                                    | 8.14                                    | NA                                        | NA                                      | 12.26                                   | NA                                        |
| Temperature, field                              | --                         | --                      | Deg C      | NA                                      | 26.2                                    | NA                                      | 17.9                                    | 11.3                                    | 16.9                                    | 14.6                                    | NA                                      | 11.1                                    | 15.3                                    | NA                                        | NA                                      | 13.1                                    | NA                                        |
| Turbidity (field)                               | --                         | --                      | NTU        | NA                                      | 4.41                                    | NA                                      | 2.5                                     | 0.02                                    | 7.01                                    | 1.43                                    | NA                                      | 0.02                                    | 1.53                                    | NA                                        | NA                                      | 1.36                                    | NA                                        |
| Volatile Organics (via EPA Method 537 Modified) |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                           |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,2,3-Trichlorobenzene                          | --                         | --                      | µg/L       | NA                                      | <5                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,2,3-Trichloropropane                          | 42                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,2,3-Trimethylbenzene                          | --                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Acrylonitrile                                   | 2.6                        | 2                       | µg/L       | NA                                      | <2                                      | NA                                      | <2 [<2]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Bromobenzene                                    | 18                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Chlorobromomethane                              | --                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Cymene (p-Isopropyltoluene)                     | --                         | --                      | µg/L       | NA                                      | <5                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Dibromomethane                                  | 80                         | --                      | µg/L       | NA                                      | <5                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Ethyl ether                                     | 10                         | --                      | µg/L       | NA                                      | <10                                     | NA                                      | <10 [<10]                               | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Iodomethane                                     | --                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| N-Butylbenzene                                  | 80                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| N-Propylbenzene                                 | 80                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| tert-Butylbenzene                               | 80                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Tetrahydrofuran                                 | 95                         | 11,000                  | µg/L       | NA                                      | <90                                     | NA                                      | <90 [<90]                               | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| trans-1,4-Dichloro-2-butene                     | --                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                      | µg/L       | NA                                      | <5                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                     | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,2-Dichlorobenzene                             | 600                        | 13                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,4-Dichlorobenzene                             | 75                         | 17                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,4-Dioxane                                     | 7.2                        | 280                     | µg/L       | 67                                      | 16                                      | 17                                      | 75 [74]                                 | 90                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,1,1-Trichloroethane                           | 200                        | 89                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 2-Hexanone                                      | 1,000                      | --                      | µg/L       | NA                                      | <50                                     | NA                                      | <50 [<50]                               | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,1,2,2-Tetrachloroethane                       | 8.5                        | 78                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Acetone                                         | 730                        | 1,700                   | µg/L       | NA                                      | <50                                     | NA                                      | <50 [<50]                               | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,1,2-Trichloroethane                           | 5                          | 330                     | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Bromodichloromethane                            | 80                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,1-Dichloroethane                              | 880                        | 740                     | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Bromoform                                       | 80                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,1-Dichloroethene                              | 7                          | 130                     | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Bromomethane (Methyl bromide)                   | 10                         | 5                       | µg/L       | NA                                      | <5                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,2-Dichloroethane                              | 5                          | 360                     | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Carbon disulfide                                | 800                        | --                      | µg/L       | NA                                      | <5                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Carbon tetrachloride                            | 5                          | 38                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| cis-1,2-Dichloroethene                          | 70                         | 620                     | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Chlorobenzene                                   | 100                        | 25                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                   | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Chloroform (Trichloromethane)                   | 80                         | 350                     | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Trichloroethene                                 | 5                          | 200                     | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Chloromethane (Methyl chloride)                 | 260                        | --                      | µg/L       | NA                                      | <5                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Tetrachloroethene                               | 5                          | 60                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| cis-1,3-Dichloropropene                         | --                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Vinyl chloride                                  | 2                          | 13                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 2-Methylnaphthalene                             | 260                        | 19                      | µg/L       | NA                                      | <5                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Chloroethane                                    | 430                        | 1,100                   | µg/L       | NA                                      | <5                                      | NA                                      | 21 [21]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                      | µg/L       | NA                                      | <5                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Benzene                                         | 5                          | 200                     | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Methyl acetate                                  | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Ethylbenzene                                    | 74                         | 18                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Methylene chloride                              | 5                          | 1,500                   | µg/L       | NA                                      | <5                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Styrene                                         | 100                        | 80                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Toluene                                         | 790                        | 270                     | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| trans-1,3-Dichloropropene                       | --                         | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                   | µg/L       | NA                                      | <5                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Naphthalene                                     | 520                        | 11                      | µg/L       | NA                                      | <5                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Trifluorotrichloroethane (Freon 113)            | 170,000                    | 32                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                   | µg/L       | NA                                      | <25                                     | NA                                      | <25 [<25]                               | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                      | µg/L       | NA                                      | <50                                     | NA                                      | <50 [<50]                               | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                      | µg/L       | NA                                      | <5                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                      | µg/L       | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units | MW-16-84<br>12/03/19<br>MW-16-84_120319 | MW-16-85<br>06/04/19<br>MW-16-85_060419 | MW-16-85<br>12/03/19<br>MW-16-85_120319 | MW-17-86<br>06/04/19<br>MW-17-86_060419 | MW-17-86<br>12/03/19<br>MW-17-86_120319 | MW-17-87<br>06/10/19<br>MW-17-87_061019 | MW-18-88<br>06/07/19<br>MW-18-88_060719 | MW-18-88<br>08/29/19<br>MW-18-88_082919 | MW-18-88<br>12/05/19<br>MW-18-88_120519 | MW-18-89<br>06/07/19<br>MW-18-89_060719 | MW-18-89<br>08/28/19<br>MW-18-89_20190828 | MW-18-89<br>12/05/19<br>MW-18-89_120519 | MW-18-90<br>06/07/19<br>MW-18-90_060719 | MW-18-90<br>08/28/19<br>MW-18-90_20190828 |
|-------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                           |
| 1,2-Dichloropropane                                                                       | 5                          | 230                     | µg/L  | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                      | µg/L  | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Cyclohexane                                                                               | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Methyl cyclohexane                                                                        | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Dibromochloromethane                                                                      | 80                         | --                      | µg/L  | NA                                      | <5                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Isopropyl benzene                                                                         | 800                        | 28                      | µg/L  | NA                                      | <5                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| o-Xylene                                                                                  | --                         | --                      | µg/L  | NA                                      | <1                                      | NA                                      | <1 [<1]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| m&p-Xylene                                                                                | --                         | --                      | µg/L  | NA                                      | <2                                      | NA                                      | <2 [<2]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Total Xylenes                                                                             | --                         | --                      | µg/L  | NA                                      | <2                                      | NA                                      | <2 [<2]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Hexachloroethane                                                                          | 7.3                        | 6.7                     | µg/L  | NA                                      | <5                                      | NA                                      | <5 [<5]                                 | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                           |
| 1,4-Dioxane                                                                               | 7.2                        | 280                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                           |
| Antimony                                                                                  | 0.006                      | 0.13                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Arsenic                                                                                   | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Barium                                                                                    | 2                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Boron                                                                                     | 0.5                        | 7.2                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Cadmium                                                                                   | 0.005                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Chromium III                                                                              | 0.1                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Cobalt                                                                                    | 0.04                       | 0.1                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Copper                                                                                    | 1                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Lead                                                                                      | 0.004                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Manganese                                                                                 | 0.05                       | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Mercury                                                                                   | 0.002                      | 0.0000013               | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Nickel                                                                                    | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Selenium                                                                                  | 0.05                       | 0.005                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Silver                                                                                    | 0.034                      | 0.0002                  | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Vanadium                                                                                  | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Zinc                                                                                      | 2.4                        | 0.26                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                           |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Chromium (dissolved)                                                                      | --                         | 0.16                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Copper (dissolved)                                                                        | 1                          | 0.02                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                           |
| Nitrate (as N)                                                                            | 10                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Phosphorus                                                                                | 63                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Sulfate                                                                                   | 250                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Total dissolved solids (TDS)                                                              | 500                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                        |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                           |
| 4:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <8                                      | <8.7                                    | <8                                      | <8                                      | <9.5                                      | <8                                      | <8                                      | <8                                        |
| 6:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <8                                      | <8.7                                    | <8                                      | <8                                      | <9.5                                      | <8                                      | <8                                      | <8                                        |
| 8:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <8                                      | <8.7                                    | <8                                      | <8                                      | <9.5                                      | <8                                      | <8                                      | <8                                        |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <20                                     | <22                                     | <20                                     | <20                                     | <24                                       | <20                                     | <20                                     | <20                                       |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <20                                     | <22                                     | <20                                     | <20                                     | <24                                       | <20                                     | <20                                     | <20                                       |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 2.1 J                                   | 2.12 J                                  | 1.95 J                                  | 1.04 J                                  | <4.8                                      | <4                                      | 1.73 J                                  | 1.46 J                                    |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 7.26 J                                  | 10.8                                    | 6.03 J                                  | 14                                      | 11.7                                      | 15.4                                    | 35.3                                    | <8                                        |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.3                                    | <4                                      | 2.34 J                                  | <4.8                                      | <4                                      | <4                                      | <4                                        |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.3                                    | <4                                      | 1.95 J                                  | <4.8                                      | 1.27 J                                  | 1.42 J                                  | 1.57 J                                    |
| Perfluorododecanoic acid (PFDDoA)                                                         | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.3                                    | <4                                      | <4                                      | <4.8                                      | <4                                      | <4                                      | <4                                        |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                     | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 1.42 J                                  | 2.5 J                                   | 1.34 J                                  | 2.95 J                                  | 3.5 J                                     | 4.33                                    | 52.2                                    | 46.1                                      |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.3                                    | <4                                      | 5.14                                    | 6.57                                      | 6.59                                    | 5.45                                    | 4.82                                      |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 2.17 J                                  | 4.06 J                                  | 1.85 J                                  | 3.2 J                                   | 4.97                                      | 5.82                                    | 34.7                                    | 30.3                                      |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | 1.34 J                                  | <4                                      | 6.25                                    | 7.94                                      | 9.54                                    | 6.58                                    | 5.54                                      |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.3                                    | <4                                      | <4                                      | <4.8                                      | <4                                      | <4                                      | <4                                        |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.3                                    | <4                                      | 1.45 J                                  | <4.8                                      | 1.38 J                                  | 1.47 J                                  | 1.56 J                                    |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.3                                    | <4                                      | <4                                      | <4.8                                      | <4                                      | 1.43 J                                  | <4                                        |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 74.6                                    | 161                                     | 78.7                                    | 155                                     | 108                                       | 151                                     | 985                                     | 965                                       |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                  | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 3.77 J                                  | 8.37                                    | 4.62                                    | 10.7                                    | 14.5                                      | 15.8                                    | 21.3                                    | 19                                        |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.3                                    | <4                                      | <4                                      | <4.8                                      | 1.12 J                                  | 5.04                                    | 4.19                                      |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.3                                    | <4                                      | 7.21                                    | 8.78                                      | 10.4                                    | 4.98                                    | 5.15                                      |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.3                                    | <4                                      | <4                                      | <4.8                                      | <4                                      | <4                                      | <4                                        |
| Perfluorotridecanoic Acid (PFTriA)                                                        | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.3                                    | <4                                      | <4                                      | <4.8                                      | <4                                      | <4                                      | <4                                        |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <4                                      | <4.3                                    | <4                                      | <4                                      | <4.8                                      | <4                                      | <4                                      | <4                                        |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 12.95 J                                 | 20.82 J                                 | 11.17 J                                 | 45.53 J                                 | 43.46 J                                   | 55.85 J                                 | 150.30 J                                | 100.69 J                                  |
| Combined PFOS and PFOA                                                                    | 70                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 78.37 J                                 | 169.37                                  | 83.32                                   | 165.7                                   | 122.5                                     | 166.8                                   | 1,006.30                                | 984                                       |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units      | MW-18-90<br>12/05/19<br>MW-18-90_120519 | MW-18-91<br>06/10/19<br>MW-18-91_061019 | MW-18-91<br>08/28/19<br>MW-18-91_20190828 | MW-18-91<br>12/06/19<br>MW-18-91_120619 | MW-18-92<br>06/05/19<br>MW-18-92_060519 | MW-18-92<br>12/03/19<br>MW-18-92_120319 | MW-18-93<br>03/06/19<br>MW-18-93_030619 | MW-18-93<br>06/10/19<br>MW-18-93_061019 | MW-18-93<br>12/06/19<br>MW-18-93_120619 | MW-18-94<br>03/06/19<br>MW-18-94_030619 | MW-18-94<br>06/10/19<br>MW-18-94_061019 | MW-18-94<br>12/06/19<br>MW-18-94_120619 | MW-18-95<br>03/05/19<br>MW-18-95_030519 | MW-18-95<br>06/10/19<br>MW-18-95_061019 |
|-------------------------------------------------|----------------------------|-------------------------|------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Field                                           |                            |                         |            |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Conductivity                                    | --                         | --                      | mS/cm      | 2.51                                    | 0.63                                    | NA                                        | 0.68                                    | 1.28                                    | 1.07                                    | 0.61                                    | 0.52                                    | 0.6245                                  | 1.62                                    | 3.15                                    | 4.268                                   | 0.356                                   | 0.362                                   |
| Dissolved oxygen (DO), field                    | --                         | --                      | mg/L       | 0.38                                    | 0.09                                    | NA                                        | 1.64                                    | 0.19                                    | 3.03                                    | 3.29                                    | 0.76                                    | 2.04                                    | 0.72                                    | 2.83                                    | 0.52                                    | 0.38                                    | 0.32                                    |
| Oxidation reduction potential (ORP), field      | --                         | --                      | millivolts | -107.8                                  | -171.2                                  | NA                                        | -46                                     | 150.5                                   | 53.5                                    | -143.9                                  | -133.4                                  | -133.7                                  | -2.1                                    | -114.6                                  | -112.3                                  | -19.4                                   | -163.2                                  |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0              | s.u.       | 12.36                                   | 7.62                                    | NA                                        | 7.37                                    | 6.86                                    | 6.75                                    | 7.78                                    | 7.55                                    | 7.48                                    | 7.44                                    | 7.03                                    | 7.11                                    | 9.53                                    | 9.26                                    |
| Temperature, field                              | --                         | --                      | Deg C      | 12.5                                    | 14.7                                    | NA                                        | 11.4                                    | 12.2                                    | 11.4                                    | 7.4                                     | 13.6                                    | 11.4                                    | 7.1                                     | 14.2                                    | 12.7                                    | 1.8                                     | 14.7                                    |
| Turbidity (field)                               | --                         | --                      | NTU        | 0.02                                    | 1.59                                    | NA                                        | 1.31                                    | 2.58                                    | 1.79                                    | 9.09                                    | 1.33                                    | 71.2                                    | 8.75                                    | 13.2                                    | 30.5                                    | 8.69                                    | 1.33                                    |
| Volatile Organics (via EPA Method 537 Modified) |                            |                         |            |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trichlorobenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trichloropropane                          | 42                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trimethylbenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Acrylonitrile                                   | 2.6                        | 2                       | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Bromobenzene                                    | 18                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chlorobromomethane                              | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cymene (p-Isopropyltoluene)                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Dibromomethane                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Ethyl ether                                     | 10                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Iodomethane                                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-Butylbenzene                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-Propylbenzene                                 | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| tert-Butylbenzene                               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Tetrahydrofuran                                 | 95                         | 11,000                  | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| trans-1,4-Dichloro-2-butene                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2-Dichlorobenzene                             | 600                        | 13                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,4-Dichlorobenzene                             | 75                         | 17                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,4-Dioxane                                     | 7.2                        | 280                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,1,1-Trichloroethane                           | 200                        | 89                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 2-Hexanone                                      | 1,000                      | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,1,2,2-Tetrachloroethane                       | 8.5                        | 78                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Acetone                                         | 730                        | 1,700                   | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,1,2-Trichloroethane                           | 5                          | 330                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Bromodichloromethane                            | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,1-Dichloroethane                              | 880                        | 740                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Bromoform                                       | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,1-Dichloroethene                              | 7                          | 130                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Bromomethane (Methyl bromide)                   | 10                         | 5                       | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2-Dichloroethane                              | 5                          | 360                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Carbon disulfide                                | 800                        | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Carbon tetrachloride                            | 5                          | 38                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| cis-1,2-Dichloroethene                          | 70                         | 620                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chlorobenzene                                   | 100                        | 25                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                   | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chloroform (Trichloromethane)                   | 80                         | 350                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Trichloroethene                                 | 5                          | 200                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chloromethane (Methyl chloride)                 | 260                        | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Tetrachloroethene                               | 5                          | 60                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| cis-1,3-Dichloropropene                         | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Vinyl chloride                                  | 2                          | 13                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 2-Methylnaphthalene                             | 260                        | 19                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chloroethane                                    | 430                        | 1,100                   | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Benzene                                         | 5                          | 200                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Methyl acetate                                  | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Ethylbenzene                                    | 74                         | 18                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Methylene chloride                              | 5                          | 1,500                   | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Styrene                                         | 100                        | 80                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Toluene                                         | 790                        | 270                     | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| trans-1,3-Dichloropropene                       | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                   | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Naphthalene                                     | 520                        | 11                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Trifluorotrichloroethane (Freon 113)            | 170,000                    | 32                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                   | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                      | µg/L       | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name:                                      | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units | MW-18-90<br>12/05/19<br>MW-18-90_120519 | MW-18-91<br>06/10/19<br>MW-18-91_061019 | MW-18-91<br>08/28/19<br>MW-18-91_20190828 | MW-18-91<br>12/06/19<br>MW-18-91_120619 | MW-18-92<br>06/05/19<br>MW-18-92_060519 | MW-18-92<br>12/03/19<br>MW-18-92_120319 | MW-18-93<br>03/06/19<br>MW-18-93_030619 | MW-18-93<br>06/10/19<br>MW-18-93_061019 | MW-18-93<br>12/06/19<br>MW-18-93_120619 | MW-18-94<br>03/06/19<br>MW-18-94_030619 | MW-18-94<br>06/10/19<br>MW-18-94_061019 | MW-18-94<br>12/06/19<br>MW-18-94_120619 | MW-18-95<br>03/05/19<br>MW-18-95_030519 | MW-18-95<br>06/10/19<br>MW-18-95_061019 |
|--------------------------------------------------------------------------------------|----------------------------|-------------------------|-------|-----------------------------------------|-----------------------------------------|-------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                      |                            |                         |       |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,2-Dichloropropane                                                                  | 5                          | 230                     | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,3-Dichlorobenzene                                                                  | 6.6                        | 28                      | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cyclohexane                                                                          | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Methyl cyclohexane                                                                   | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Dibromochloromethane                                                                 | 80                         | --                      | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Isopropyl benzene                                                                    | 800                        | 28                      | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| o-Xylene                                                                             | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| m&p-Xylene                                                                           | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total Xylenes                                                                        | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Hexachloroethane                                                                     | 7.3                        | 6.7                     | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise r |                            |                         |       |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,4-Dioxane                                                                          | 7.2                        | 280                     | µg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Inorganics (via EPA Method 537 Modified)                                             |                            |                         |       |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Antimony                                                                             | 0.006                      | 0.13                    | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Arsenic                                                                              | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Barium                                                                               | 2                          | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Boron                                                                                | 0.5                        | 7.2                     | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cadmium                                                                              | 0.005                      | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium III                                                                         | 0.1                        | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium VI (hexavalent)                                                             | 0.1                        | 0.011                   | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cobalt                                                                               | 0.04                       | 0.1                     | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Copper                                                                               | 1                          | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Lead                                                                                 | 0.004                      | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Manganese                                                                            | 0.05                       | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Mercury                                                                              | 0.002                      | 0.0000013               | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Nickel                                                                               | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Selenium                                                                             | 0.05                       | 0.005                   | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Silver                                                                               | 0.034                      | 0.0002                  | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Vanadium                                                                             | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Zinc                                                                                 | 2.4                        | 0.26                    | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Inorganics-Filtered (via EPA Method 537 Modified)                                    |                            |                         |       |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Arsenic (dissolved)                                                                  | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium (dissolved)                                                                 | --                         | 0.16                    | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Copper (dissolved)                                                                   | 1                          | 0.02                    | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Lead (dissolved)                                                                     | 0.004                      | 0.044                   | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Nickel (dissolved)                                                                   | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Vanadium (dissolved)                                                                 | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| General Chemistry (via EPA Method 537 Modified)                                      |                            |                         |       |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Nitrate (as N)                                                                       | 10                         | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Phosphorus                                                                           | 63                         | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Sulfate                                                                              | 250                        | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total dissolved solids (TDS)                                                         | 500                        | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total kjeldahl nitrogen (TKN)                                                        | --                         | --                      | mg/L  | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| PFAS (via EPA Method 537 Modified)                                                   |                            |                         |       |                                         |                                         |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 4:2 FTS                                                                              | --                         | --                      | ng/L  | <8                                      | <8                                      | <7.4                                      | <8                                      | <8                                      | <8                                      | <7.7                                    | <8                                      | <8                                      | <7.7                                    | <8                                      | <8.3                                    | <7.7 [<7.7]                             | <8                                      |
| 6:2 FTS                                                                              | --                         | --                      | ng/L  | <8                                      | <8                                      | <7.4                                      | <8                                      | <8                                      | <8                                      | <7.7                                    | <8                                      | <8                                      | <7.7                                    | <8                                      | <8.3                                    | <7.7 [<7.7]                             | <8                                      |
| 8:2 FTS                                                                              | --                         | --                      | ng/L  | <8                                      | <8                                      | <7.4                                      | <8                                      | <8                                      | <8                                      | <7.7                                    | <8                                      | <8                                      | <7.7                                    | <8                                      | <8.3                                    | <7.7 [<7.7]                             | <8                                      |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                       | --                         | --                      | ng/L  | <20                                     | <20                                     | <19                                       | <20                                     | <20                                     | <20                                     | <19                                     | <20                                     | <20                                     | <19                                     | <20                                     | <21                                     | <19 [<19]                               | <20                                     |
| N-methyl perfluorooctane sulfonamidoacetic acid                                      | --                         | --                      | ng/L  | <20                                     | <20                                     | <19                                       | <20                                     | <20                                     | <20                                     | <19                                     | <20                                     | <20                                     | <19                                     | <20                                     | <21                                     | <19 [<19]                               | <20                                     |
| Perfluorobutanesulfonic acid (PFBS)                                                  | --                         | --                      | ng/L  | 1.7 J                                   | 1.75 J                                  | <3.7                                      | 1.31 J                                  | <4                                      | <3.8                                    | <4                                      | <4                                      | <3.8                                    | <4                                      | <4.2                                    | 2.84 J [2.72 J]                         | 1.97 J                                  | 1.97 J                                  |
| Perfluorobutanoic acid (PFBA)                                                        | --                         | --                      | ng/L  | <8                                      | 12.2                                    | 9.49                                      | 13.6                                    | 3.54 J                                  | 2.24 J                                  | <7.7                                    | <8                                      | <7.7                                    | <8                                      | <8.3                                    | 17.2 [16.2]                             | 13                                      | 13                                      |
| Perfluorodecanesulfonic acid (PFDS)                                                  | --                         | --                      | ng/L  | <4                                      | 1.31 J                                  | <3.7                                      | <4                                      | <4                                      | <3.8                                    | <4                                      | <4                                      | <3.8                                    | <4                                      | <4.2                                    | 6.27 [5.35]                             | 4.17                                    | 4.17                                    |
| Perfluorodecanoic acid (PFDA)                                                        | --                         | --                      | ng/L  | 1.66 J                                  | 1.06 J                                  | 1.39 J                                    | 1.22 J                                  | <4                                      | <4                                      | <3.8                                    | <4                                      | <3.8                                    | <4                                      | <4.2                                    | 5.53 [5.25]                             | 1.94 J                                  | 1.94 J                                  |
| Perfluorododecanoic acid (PFDoA)                                                     | --                         | --                      | ng/L  | <4                                      | <3.7                                    | <4                                        | <4                                      | <4                                      | <3.8                                    | <4                                      | <4                                      | <3.8                                    | <4                                      | <4.2                                    | <3.8 [<3.8]                             | <4                                      | <4                                      |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                | --                         | --                      | ng/L  | 53.8                                    | 1.06 J                                  | 1.62 J                                    | <4                                      | <4                                      | <4                                      | <3.8                                    | <4                                      | <3.8                                    | <4                                      | <4.2                                    | <3.8 [<3.8]                             | 1.74 J                                  | 1.74 J                                  |
| Perfluoroheptanoic acid (PFHpA)                                                      | --                         | --                      | ng/L  | 5.37                                    | 4.22                                    | 4.35                                      | 2.94 J                                  | <4                                      | <4                                      | <3.8                                    | <4                                      | <3.8                                    | <4                                      | <4.2                                    | 7.03 [6.53]                             | 4.12                                    | 4.12                                    |
| Perfluorohexanesulfonic acid (PFHxS)                                                 | --                         | --                      | ng/L  | 29.6                                    | 1.92 J                                  | 1.9 J                                     | 1.76 J                                  | <4                                      | <4                                      | <3.8                                    | <4                                      | <3.8                                    | <4                                      | <4.2                                    | 1.83 J [<3.8]                           | 1.71 J                                  | 1.71 J                                  |
| Perfluorohexanoic acid (PFHxA)                                                       | --                         | --                      | ng/L  | 7.06                                    | 5.38                                    | 3.85                                      | 2.83 J                                  | <4                                      | <4                                      | <3.8                                    | <4                                      | <3.8                                    | <4                                      | <4.2                                    | 8.11 [7.92]                             | 4.6                                     | 4.6                                     |
| Perfluorononanesulfonic acid (PFNS)                                                  | --                         | --                      | ng/L  | <4                                      | <4                                      | <3.7                                      | <4                                      | <4                                      | <3.8                                    | <4                                      | <4                                      | <3.8                                    | <4                                      | <4.2                                    | <3.8 [<3.8]                             | <4                                      | <4                                      |
| Perfluorononanoic acid (PFNA)                                                        | --                         | --                      | ng/L  | 1.64 J                                  | 1.58 J                                  | 2.15 J                                    | 1.43 J                                  | <4                                      | <4                                      | <3.8                                    | <4                                      | <3.8                                    | <4                                      | <4.2                                    | 4.43 [4.17]                             | 1.65 J                                  | 1.65 J                                  |
| Perfluorooctane Sulfonamide (FOSA)                                                   | --                         | --                      | ng/L  | <4                                      | 1.91 J                                  | <3.7                                      | <4                                      | <4                                      | <3.8                                    | <4                                      | <4                                      | <3.8                                    | <4                                      | <4.2                                    | <3.8 [<3.8]                             | <4                                      | <4                                      |
| Perfluorooctane sulfonic acid (PFOS)                                                 | 70                         | 12                      | ng/L  | 1,100                                   | 60.6                                    | 72.7                                      | 59.9                                    | 1.79 J                                  | <4                                      | <3.8                                    | <4                                      | <3.8                                    | <4                                      | <4.2                                    | 115 [100]                               | 105                                     | 105                                     |
| Perfluorooctanoic acid (PFOA)                                                        | 70                         | 12,000                  | ng/L  | 21.1                                    | 10.6                                    | 10.9                                      | 8.18                                    | 1.18 J                                  | 1.34 J                                  | <3.8                                    | <4                                      | <3.8                                    | <4                                      | <4.2                                    | 16.6 [15]                               | 11.1                                    | 11.1                                    |
| Perfluoropentanesulfonic acid (PFPeS)                                                | --                         | --                      | ng/L  | 3.21 J                                  | <4                                      | <3.7                                      | <4                                      | <4                                      | <3.8                                    | <4                                      | <4                                      | <3.8                                    | <4                                      | <4.2                                    | <3.8 [<3.8]                             | <4                                      | <4                                      |
| Perfluoropentanoic acid (PFPeA)                                                      | --                         | --                      | ng/L  | 4.5                                     | 7.41                                    | 5.63                                      | 2.83 J                                  | <4                                      | <4                                      | <3.8                                    | <4                                      | <3.8                                    | <4                                      | <4.2                                    | 16.6 [13.8]                             | 5.75                                    | 5.75                                    |
| Perfluorotetradecanoic acid (PFTeA)                                                  | --                         | --                      | ng/L  | <4                                      | <4                                      | <3.7                                      | <4                                      | <4                                      | <3.8                                    | <4                                      | <4                                      | <3.8                                    | <4                                      | <4.2                                    | <3.8 [<3.8]                             | <4                                      | <4                                      |
| Perfluorotridecanoic Acid (PFTriA)                                                   | --                         | --                      | ng/L  | <4                                      | <4                                      | <3.7                                      | <4                                      | <4                                      | <3.8                                    | <4                                      | <4                                      | <3.8                                    | <4                                      | <4.2                                    | <3.8 [<3.8]                             | <4                                      | <4                                      |
| Perfluoroundecanoic acid (PFUnA)                                                     | --                         | --                      | ng/L  | <4                                      | <4                                      | <3.7                                      | <4                                      | <4                                      | <3.8                                    | <4                                      | <4                                      | <3.8                                    | <4                                      | <4.2                                    | <3.8 [<3.8]                             | <4                                      | <4                                      |
| Total PFAS (excluding PFOS and PFOA)                                                 | --                         | --                      | ng/L  | 108.54 J                                | 39.80 J                                 | 30.38 J                                   | 27.92 J                                 | 3.54 J                                  | 2.24 J                                  | <19                                     | <20                                     | <20                                     | <19                                     | <20                                     | <21                                     | 69.84 J [61.94 J]                       | 40.65 J                                 |
| Combined PFOS and PFOA                                                               | 70                         | --                      | ng/L  | 1,121.10                                | 71.2                                    | 83.6                                      | 68.08                                   | 2.97 J                                  | 1.34 J                                  | <3.8                                    | <4                                      | <4                                      | <3.8                                    | <4                                      | <4.2                                    | 131.6 [115]                             | 116.1                                   |

See notes on last page.







Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units | MW-18-95<br>08/29/19<br>MW-18-95 (082919) | MW-18-95<br>12/06/19<br>MW-18-95 120619 | MW-18-97<br>03/06/19<br>MW-18-97 030619 | MW-18-97<br>06/10/19<br>MW-18-97 061019 | MW-18-97<br>06/11/19<br>MW-18-97 061119 | MW-18-97<br>12/06/19<br>MW-18-97 120619 | MW-18-98<br>03/05/19<br>MW-18-98 030519 | MW-18-98<br>05/09/19<br>MW-18-98 050919 | MW-18-98<br>06/04/19<br>MW-18-98 060419 | MW-18-98<br>08/28/19<br>MW-18-98 20190828 | MW-18-98<br>12/04/19<br>MW-18-98 120419 | MW-18-99<br>03/05/19<br>MW-18-99 030519 | MW-18-99<br>05/09/19<br>MW-18-99 050919 | MW-18-99<br>06/05/19<br>MW-18-99 060519 |
|-------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------|-------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                         |       |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                         |                                         |
| 1,2-Dichloropropane                                                                       | 5                          | 230                     | µg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                      | µg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Cyclohexane                                                                               | --                         | --                      | µg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Methyl cyclohexane                                                                        | --                         | --                      | µg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Dibromochloromethane                                                                      | 80                         | --                      | µg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Isopropyl benzene                                                                         | 800                        | 28                      | µg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| o-Xylene                                                                                  | --                         | --                      | µg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| m&p-Xylene                                                                                | --                         | --                      | µg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Total Xylenes                                                                             | --                         | --                      | µg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Hexachloroethane                                                                          | 7.3                        | 6.7                     | µg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                         |       |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                         |                                         |
| 1,4-Dioxane                                                                               | 7.2                        | 280                     | µg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                         |       |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                         |                                         |
| Antimony                                                                                  | 0.006                      | 0.13                    | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Arsenic                                                                                   | 0.01                       | 0.01                    | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Barium                                                                                    | 2                          | --                      | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Boron                                                                                     | 0.5                        | 7.2                     | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Cadmium                                                                                   | 0.005                      | --                      | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium III                                                                              | 0.1                        | --                      | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                   | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Cobalt                                                                                    | 0.04                       | 0.1                     | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Copper                                                                                    | 1                          | --                      | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Lead                                                                                      | 0.004                      | --                      | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Manganese                                                                                 | 0.05                       | --                      | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Mercury                                                                                   | 0.002                      | 0.0000013               | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Nickel                                                                                    | 0.1                        | 0.12                    | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Selenium                                                                                  | 0.05                       | 0.005                   | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Silver                                                                                    | 0.034                      | 0.0002                  | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Vanadium                                                                                  | 0.0045                     | 0.027                   | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Zinc                                                                                      | 2.4                        | 0.26                    | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                         |       |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                         |                                         |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                    | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium (dissolved)                                                                      | --                         | 0.16                    | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Copper (dissolved)                                                                        | 1                          | 0.02                    | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                   | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                    | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                   | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                         |       |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                         |                                         |
| Nitrate (as N)                                                                            | 10                         | --                      | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Phosphorus                                                                                | 63                         | --                      | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Sulfate                                                                                   | 250                        | --                      | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Total dissolved solids (TDS)                                                              | 500                        | --                      | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                      | mg/L  | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                        | NA                                      | NA                                      | NA                                      | NA                                      |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                         |       |                                           |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                           |                                         |                                         |                                         |                                         |
| 4:2 FTS                                                                                   | --                         | --                      | ng/L  | <8 [<9.1]                                 | <7.7                                    | <7.7                                    | <8 [<8]                                 | NA                                      | <8 [<8]                                 | <7.7                                    | <8                                      | <8                                      | <28                                       | <8 [<8]                                 | <7.7                                    | <8                                      | <8                                      |
| 6:2 FTS                                                                                   | --                         | --                      | ng/L  | <8 [<9.1]                                 | <7.7                                    | <7.7                                    | <8 [<8]                                 | NA                                      | <8 [<8]                                 | <7.7                                    | <8                                      | <8                                      | <28                                       | <8 [<8]                                 | <7.7                                    | <8                                      | <8                                      |
| 8:2 FTS                                                                                   | --                         | --                      | ng/L  | <8 [<9.1]                                 | <7.7                                    | <7.7                                    | <8 [<8]                                 | NA                                      | <8 [<8]                                 | <7.7                                    | <8                                      | <8                                      | <28                                       | <8 [<8]                                 | <7.7                                    | <8                                      | <8                                      |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                      | ng/L  | <20 [<23]                                 | <19                                     | <19                                     | <20 [<20]                               | NA                                      | <20 [<20]                               | <19                                     | <20                                     | <20                                     | <70                                       | <20 [<20]                               | <19                                     | <20                                     | <20                                     |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                      | ng/L  | <20 [<23]                                 | <19                                     | <19                                     | <20 [<20]                               | NA                                      | <20 [<20]                               | <19                                     | <20                                     | <20                                     | <70                                       | <20 [<20]                               | <19                                     | <20                                     | <20                                     |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                      | ng/L  | 1.45 J [1.71 J]                           | 1.82 J                                  | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | 2.27 J                                  | 2.69 J                                  | 3.2 J                                   | <14                                       | 2.31 J [2.58 J]                         | <3.8                                    | <4                                      | <4                                      |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                      | ng/L  | 7.44 J [8.27 J]                           | 6.13 J                                  | 2.28 J                                  | <8 [<8]                                 | NA                                      | <8 [<8]                                 | 20.3                                    | 12                                      | 14.5                                    | 7.25 J                                    | 6.59 J [6.85 J]                         | 15.6                                    | 14.6                                    | 20.4                                    |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                      | ng/L  | <4 [<4.5]                                 | <3.8                                    | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      | <14                                       | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                      | ng/L  | 1.06 J [<4.5]                             | <3.8                                    | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      | <14                                       | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      |
| Perfluorododecanoic acid (PFDoA)                                                          | --                         | --                      | ng/L  | <4 [<4.5]                                 | <3.8                                    | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      | <14                                       | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      |
| Perfluoroheptanesulfonic acid (PFHpS)                                                     | --                         | --                      | ng/L  | <4 [1.47 J]                               | <3.8                                    | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | 4.58                                    | 3.99 J                                  | 6.18                                    | <14                                       | 1.19 J [1.22 J]                         | 2 J                                     | 1.26 J                                  | 2.21 J                                  |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                      | ng/L  | 1.86 J [1.87 J]                           | 1.39 J                                  | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | 12.3                                    | 10.8                                    | 12.5                                    | 9.23 J                                    | 2.73 J [2.64 J]                         | 3.77 J                                  | 3.97 J                                  | 3.43 J                                  |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                      | ng/L  | 1.68 J [1.81 J]                           | 0.968 J                                 | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | 4.15                                    | 4.5                                     | 5.1                                     | <14                                       | 1.01 J [1.2 J]                          | 1.85 J                                  | 1.48 J                                  | 1.82 J                                  |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                      | ng/L  | 1.86 J [2.2 J]                            | 1.45 J                                  | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | 15.3                                    | 13.9                                    | 16.2                                    | 11.3 J                                    | 3.37 J [3.68 J]                         | 3.53 J                                  | 5.54                                    | 4.34                                    |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                      | ng/L  | <4 [<4.5]                                 | <3.8                                    | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      | <14                                       | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                      | ng/L  | 1.31 J [1.39 J]                           | <3.8                                    | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      | <14                                       | <4 [<4]                                 | <3.8                                    | 1.8 J                                   | 2.31 J                                  |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                      | ng/L  | <4 [<4.5]                                 | <19                                     | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      | <14                                       | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                      | ng/L  | 54.5 [60.7]                               | 46.8                                    | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | 132                                     | 137                                     | 203                                     | 114                                       | 63.8 [71.4]                             | 74.2                                    | 57.3                                    | 75                                      |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                  | ng/L  | 6.42 [7.23]                               | 3.86                                    | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | 39.3                                    | 35                                      | 42                                      | 27.5                                      | 9.08 [9.7]                              | 8.46                                    | 7.73                                    | 7.1                                     |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                      | ng/L  | <4 [<4.5]                                 | <3.8                                    | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      | <14                                       | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                      | ng/L  | 3.51 J [4.23 J]                           | <3.8                                    | <3.8                                    | 1.64 J [<4]                             | NA                                      | <4 [<4]                                 | 11.1                                    | 10.2                                    | 11.5                                    | 9.39 J                                    | 1.81 J [1.96 J]                         | 3.61 J                                  | 4.83                                    | 3.54 J                                  |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                      | ng/L  | 1.31 J [<4.5]                             | <3.8                                    | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      | <14                                       | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      |
| Perfluorotridecanoic Acid (PFTriA)                                                        | --                         | --                      | ng/L  | 1.4 J [<4.5]                              | <3.8                                    | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      | <14                                       | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                      | ng/L  | <4 [<4.5]                                 | <3.8                                    | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      | <14                                       | <4 [<4]                                 | <3.8                                    | <4                                      | <4                                      |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                      | ng/L  | 22.88 J [22.95 J]                         | 11.76 J                                 | 2.28 J                                  | 1.64 J [<4]                             | NA                                      | <20 [<20]                               | 70.00 J                                 | 58.08 J                                 | 69.18 J                                 | 37.17 J                                   | 19.01 J [20.13 J]                       | 30.36 J                                 | 33.48 J                                 | 38.05 J                                 |
| Combined PFOS and PFOA                                                                    | 70                         | --                      | ng/L  | 60.92 [67.93]                             | 50.66                                   | <3.8                                    | <4 [<4]                                 | NA                                      | <4 [<4]                                 | 171.3                                   | 172                                     | 245                                     | 141.5                                     | 72.88 [81.1]                            | 82.66                                   | 65.03                                   | 82.1                                    |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units      | MW-18-99<br>08/28/19<br>MW-18-99_20190828 | MW-18-99<br>12/04/19<br>MW-18-99_120419 | MW-18-100<br>03/05/19<br>MW-18-100_030519 | MW-18-100<br>06/05/19<br>MW-18-100_060519 | MW-18-100<br>12/04/19<br>MW-18-100_120419 | MW-18-101<br>03/06/19<br>MW-18-101_030619 | MW-18-101<br>06/11/19<br>MW-18-101_061119 | MW-18-101<br>12/06/19<br>MW-18-101_120619 | MW-18-102<br>03/04/19<br>MW-18-102_030419 | MW-18-102<br>06/06/19<br>MW-18-102_060619 | MW-18-102<br>12/04/19<br>MW-18-102_120419 | MW-18-103<br>03/04/19<br>MW-18-103_030419 | MW-18-103<br>06/06/19<br>MW-18-103_060619 |
|-------------------------------------------------|----------------------------|-------------------------|------------|-------------------------------------------|-----------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
| Field                                           |                            |                         |            |                                           |                                         |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |
| Conductivity                                    | --                         | --                      | mS/cm      | NA                                        | 1.28                                    | 0.463                                     | 0.41                                      | 0.487                                     | 0.97                                      | 1.48                                      | 1.45                                      | 0.632                                     | 0.52                                      | 0.493                                     | 0.727                                     | 0.71                                      |
| Dissolved oxygen (DO), field                    | --                         | --                      | mg/L       | NA                                        | 0.22                                    | 0.96                                      | 0.5                                       | 2.78                                      | 1.18                                      | 0.22                                      | 0.95                                      | 4.09                                      | 1.83                                      | 2.41                                      | 1.16                                      | 1.24                                      |
| Oxidation reduction potential (ORP), field      | --                         | --                      | millivolts | NA                                        | 140.5                                   | 82.2                                      | 197.2                                     | 100.1                                     | -7.5                                      | -182.6                                    | -231.8                                    | 24.7                                      | 79.7                                      | -9.5                                      | 9.5                                       | 199.9                                     |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0              | s.u.       | NA                                        | 7.95                                    | 7.97                                      | 7.85                                      | 7.63                                      | 7.55                                      | 6.97                                      | 7.03                                      | 7.36                                      | 7.22                                      | 7.18                                      | 7.2                                       | 7.08                                      |
| Temperature, field                              | --                         | --                      | Deg C      | NA                                        | 10.8                                    | 2.7                                       | 13.7                                      | 11.8                                      | 5.4                                       | 13.5                                      | 11.4                                      | 6                                         | 10.9                                      | 11                                        | 3.1                                       | 12.4                                      |
| Turbidity (field)                               | --                         | --                      | NTU        | NA                                        | 2.11                                    | 9.11                                      | 1.83                                      | 2.29                                      | 9.93                                      | 6.84                                      | 31.9                                      | 28.6                                      | 1.96                                      | 2.2                                       | 35.1                                      | 1.88                                      |
| Volatile Organics (via EPA Method 537 Modified) |                            |                         |            |                                           |                                         |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2,3-Trichlorobenzene                          | --                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2,3-Trichloropropane                          | 42                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2,3-Trimethylbenzene                          | --                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Acrylonitrile                                   | 2.6                        | 2                       | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Bromobenzene                                    | 18                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Chlorobromomethane                              | --                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Cymene (p-Isopropyltoluene)                     | --                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Dibromomethane                                  | 80                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Ethyl ether                                     | 10                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Iodomethane                                     | --                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| N-Butylbenzene                                  | 80                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| N-Propylbenzene                                 | 80                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| tert-Butylbenzene                               | 80                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Tetrahydrofuran                                 | 95                         | 11,000                  | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| trans-1,4-Dichloro-2-butene                     | --                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                     | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2-Dichlorobenzene                             | 600                        | 13                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,4-Dichlorobenzene                             | 75                         | 17                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,4-Dioxane                                     | 7.2                        | 280                     | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,1,1-Trichloroethane                           | 200                        | 89                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 2-Hexanone                                      | 1,000                      | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,1,1,2,2-Tetrachloroethane                     | 8.5                        | 78                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Acetone                                         | 730                        | 1,700                   | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,1,2-Trichloroethane                           | 5                          | 330                     | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Bromodichloromethane                            | 80                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,1-Dichloroethane                              | 880                        | 740                     | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Bromoform                                       | 80                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,1-Dichloroethene                              | 7                          | 130                     | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Bromomethane (Methyl bromide)                   | 10                         | 5                       | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2-Dichloroethane                              | 5                          | 360                     | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Carbon disulfide                                | 800                        | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Carbon tetrachloride                            | 5                          | 38                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| cis-1,2-Dichloroethene                          | 70                         | 620                     | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Chlorobenzene                                   | 100                        | 25                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                   | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Chloroform (Trichloromethane)                   | 80                         | 350                     | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Trichloroethene                                 | 5                          | 200                     | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Chloromethane (Methyl chloride)                 | 260                        | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Tetrachloroethene                               | 5                          | 60                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| cis-1,3-Dichloropropene                         | --                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Vinyl chloride                                  | 2                          | 13                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 2-Methylnaphthalene                             | 260                        | 19                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Chloroethane                                    | 430                        | 1,100                   | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Benzene                                         | 5                          | 200                     | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Methyl acetate                                  | --                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Ethylbenzene                                    | 74                         | 18                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Methylene chloride                              | 5                          | 1,500                   | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Styrene                                         | 100                        | 80                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Toluene                                         | 790                        | 270                     | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| trans-1,3-Dichloropropene                       | --                         | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                   | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Naphthalene                                     | 520                        | 11                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Trifluorotrichloroethane (Freon 113)            | 170,000                    | 32                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                   | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                      | µg/L       | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE<br>2018) | Units | MW-18-99<br>08/28/19<br>MW-18-99_20190828 | MW-18-99<br>12/04/19<br>MW-18-99_120419 | MW-18-100<br>03/05/19<br>MW-18-100_030519 | MW-18-100<br>06/05/19<br>MW-18-100_060519 | MW-18-100<br>12/04/19<br>MW-18-100_120419 | MW-18-101<br>03/06/19<br>MW-18-101_030619 | MW-18-101<br>06/11/19<br>MW-18-101_061119 | MW-18-101<br>12/06/19<br>MW-18-101_120619 | MW-18-102<br>03/04/19<br>MW-18-102_030419 | MW-18-102<br>06/06/19<br>MW-18-102_060619 | MW-18-102<br>12/04/19<br>MW-18-102_120419 | MW-18-103<br>03/04/19<br>MW-18-103_030419 | MW-18-103<br>06/06/19<br>MW-18-103_060619 |
|-------------------------------------------------------------------------------------------|----------------------------|----------------------------|-------|-------------------------------------------|-----------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                            |       |                                           |                                         |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |
| 1,2-Dichloropropane                                                                       | 5                          | 230                        | µg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                         | µg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Cyclohexane                                                                               | --                         | --                         | µg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Methyl cyclohexane                                                                        | --                         | --                         | µg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Dibromochloromethane                                                                      | 80                         | --                         | µg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Isopropyl benzene                                                                         | 800                        | 28                         | µg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| o-Xylene                                                                                  | --                         | --                         | µg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| m&p-Xylene                                                                                | --                         | --                         | µg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Total Xylenes                                                                             | --                         | --                         | µg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Hexachloroethane                                                                          | 7.3                        | 6.7                        | µg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                            |       |                                           |                                         |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |
| 1,4-Dioxane                                                                               | 7.2                        | 280                        | µg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                            |       |                                           |                                         |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |
| Antimony                                                                                  | 0.006                      | 0.13                       | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Arsenic                                                                                   | 0.01                       | 0.01                       | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Barium                                                                                    | 2                          | --                         | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Boron                                                                                     | 0.5                        | 7.2                        | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Cadmium                                                                                   | 0.005                      | --                         | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Chromium III                                                                              | 0.1                        | --                         | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                      | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Cobalt                                                                                    | 0.04                       | 0.1                        | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Copper                                                                                    | 1                          | --                         | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Lead                                                                                      | 0.004                      | --                         | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Manganese                                                                                 | 0.05                       | --                         | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Mercury                                                                                   | 0.002                      | 0.0000013                  | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Nickel                                                                                    | 0.1                        | 0.12                       | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Selenium                                                                                  | 0.05                       | 0.005                      | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Silver                                                                                    | 0.034                      | 0.0002                     | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Vanadium                                                                                  | 0.0045                     | 0.027                      | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Zinc                                                                                      | 2.4                        | 0.26                       | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                            |       |                                           |                                         |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                       | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Chromium (dissolved)                                                                      | --                         | 0.16                       | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Copper (dissolved)                                                                        | 1                          | 0.02                       | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                      | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                       | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                      | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                            |       |                                           |                                         |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |
| Nitrate (as N)                                                                            | 10                         | --                         | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Phosphorus                                                                                | 63                         | --                         | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Sulfate                                                                                   | 250                        | --                         | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Total dissolved solids (TDS)                                                              | 500                        | --                         | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                         | mg/L  | NA                                        | NA                                      | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                            |       |                                           |                                         |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |
| 4:2 FTS                                                                                   | --                         | --                         | ng/L  | <8                                        | <8                                      | <7.7                                      | <7.7                                      | <8                                        | <7.7                                      | <8                                        | <8                                        | <7.7                                      | <8                                        | <8 [<8]                                   | <7.7                                      | <8                                        |
| 6:2 FTS                                                                                   | --                         | --                         | ng/L  | <8                                        | <8                                      | <7.7                                      | <7.7                                      | <8                                        | <7.7                                      | <8                                        | <8                                        | <7.7                                      | <8                                        | <8 [<8]                                   | <7.7                                      | <8                                        |
| 8:2 FTS                                                                                   | --                         | --                         | ng/L  | <8                                        | <8                                      | <7.7                                      | <7.7                                      | <8                                        | <7.7                                      | <8                                        | <8                                        | <7.7                                      | <8                                        | <8 [<8]                                   | <7.7                                      | <8                                        |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                         | ng/L  | <20                                       | <20                                     | <19                                       | <19                                       | <20                                       | <19                                       | <20                                       | <20                                       | <19                                       | <20                                       | <20 [<20]                                 | <19                                       | <20                                       |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                         | ng/L  | <20                                       | <20                                     | <19                                       | <19                                       | <20                                       | <19                                       | <20                                       | <20                                       | <19                                       | <20                                       | <20 [<20]                                 | <19                                       | <20                                       |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                         | ng/L  | <4                                        | 1.06 J                                  | 1.47 J                                    | 1.67 J                                    | 1.58 J                                    | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | 5.34                                      | 4.37                                      |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                         | ng/L  | 12.8                                      | 11                                      | 6.46 J                                    | 8.09                                      | 8.09                                      | <7.7                                      | <8                                        | <8                                        | <7.7                                      | <8                                        | <8 [<8]                                   | <7.7                                      | <8                                        |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                         | ng/L  | <4                                        | <4                                      | <3.8                                      | <3.8                                      | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | <3.8                                      | <4                                        |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                         | ng/L  | 1.19 J                                    | 1.26 J                                  | <3.8                                      | <3.8                                      | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | <3.8                                      | <4                                        |
| Perfluorododecanoic acid (PFDoA)                                                          | --                         | --                         | ng/L  | <4                                        | <4                                      | <3.8                                      | <3.8                                      | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | <3.8                                      | <4                                        |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                     | --                         | --                         | ng/L  | 1.61 J                                    | 1.53 J                                  | <3.8                                      | <3.8                                      | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | <3.8                                      | <4                                        |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                         | ng/L  | 3.7 J                                     | 3.1 J                                   | 1.68 J                                    | 1.31 J                                    | 1.78 J                                    | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | <3.8                                      | <4                                        |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                         | ng/L  | 1.9 J                                     | 2.13 J                                  | 2.86 J                                    | 3.93                                      | 4.11                                      | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | 26.1                                      | 26.8                                      |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                         | ng/L  | 4.46                                      | 3.18 J                                  | 3.13 J                                    | 2.28 J                                    | 3.51 J                                    | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | <3.8                                      | <4                                        |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                         | ng/L  | <4                                        | <4                                      | <3.8                                      | <3.8                                      | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | <3.8                                      | <4                                        |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                         | ng/L  | 1.97 J                                    | 1.41 J                                  | <3.8                                      | <3.8                                      | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | <3.8                                      | <4                                        |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                         | ng/L  | <4                                        | <4                                      | <3.8                                      | <3.8                                      | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | <3.8                                      | <4                                        |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                         | ng/L  | 112                                       | 93.4                                    | <3.8                                      | 3.92                                      | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | <3.8                                      | <4                                        |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                     | ng/L  | 6.49                                      | 5.59                                    | 2.32 J                                    | 1.9 J                                     | 3.31 J                                    | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | <3.8                                      | <4                                        |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                         | ng/L  | <4                                        | <4                                      | <3.8                                      | <3.8                                      | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | 3.5 J                                     | 3.64 J                                    |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                         | ng/L  | 3.64 J                                    | 3.45 J                                  | 2.33 J                                    | 1.76 J                                    | 2.4 J                                     | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | <3.8                                      | <4                                        |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                         | ng/L  | <4                                        | <4                                      | <3.8                                      | <3.8                                      | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | <3.8                                      | <4                                        |
| Perfluorotridecanoic Acid (PFTriA)                                                        | --                         | --                         | ng/L  | <4                                        | <4                                      | <3.8                                      | <3.8                                      | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | <3.8                                      | <4                                        |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                         | ng/L  | <4                                        | <4                                      | <3.8                                      | <3.8                                      | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | <3.8                                      | <4                                        |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                         | ng/L  | 31.27 J                                   | 28.12 J                                 | 17.93 J                                   | 19.04 J                                   | 21.47 J                                   | <19                                       | <20                                       | <20                                       | <19                                       | <20                                       | <20 [<20]                                 | 34.94 J                                   | 34.81 J                                   |
| Combined PFOS and PFOA                                                                    | 70                         | --                         | ng/L  | 118.49                                    | 98.99                                   | 2.32 J                                    | 5.82 J                                    | 3.31 J                                    | <3.8                                      | <4                                        | <4                                        | <3.8                                      | <4                                        | <4 [<4]                                   | <3.8                                      | <4                                        |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units      | MW-18-103<br>08/29/19<br>MW-18-103 (082919) | MW-18-103<br>12/05/19<br>MW-18-103 120519 | MW-18-104<br>03/04/19<br>MW-18-104 030419 | MW-18-104<br>06/06/19<br>MW-18-104 060619 | MW-18-104<br>12/05/19<br>MW-18-104 120519 | MW-18-105<br>03/04/19<br>MW-18-105 030419 | MW-18-105<br>05/09/19<br>MW-18-105 050919 | MW-18-105<br>06/06/19<br>MW-18-105 060619 | MW-18-105<br>08/29/19<br>MW-18-105 (082919) | MW-18-105<br>12/05/19<br>MW-18-105 120519 | MW-18-106<br>03/04/19<br>MW-18-106 030419 | MW-18-106<br>05/10/19<br>MW-18-106 051019 | MW-18-106<br>06/06/19<br>MW-18-106 060619 |
|-------------------------------------------------|----------------------------|-------------------------|------------|---------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|---------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
| Field                                           |                            |                         |            |                                             |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                             |                                           |                                           |                                           |                                           |
| Conductivity                                    | --                         | --                      | mS/cm      | NA                                          | 0.457                                     | 0.642                                     | 0.499                                     | 0.436                                     | 0.622                                     | NA                                        | 0.52                                      | NA                                          | 0.439                                     | 0.537                                     | NA                                        | 0.49                                      |
| Dissolved oxygen (DO), field                    | --                         | --                      | mg/L       | NA                                          | 0.94                                      | 0.55                                      | 0.25                                      | 4.12                                      | 0.21                                      | NA                                        | 0.12                                      | NA                                          | 0.53                                      | 0.53                                      | NA                                        | 0.11                                      |
| Oxidation reduction potential (ORP), field      | --                         | --                      | millivolts | NA                                          | 44.3                                      | 41.4                                      | -44.9                                     | 48                                        | -67.1                                     | NA                                        | -32.2                                     | NA                                          | 39.7                                      | 31.3                                      | NA                                        | -78.2                                     |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0              | s.u.       | NA                                          | 7.07                                      | 7.67                                      | 7.36                                      | 7.19                                      | 7.53                                      | NA                                        | 7.26                                      | NA                                          | 7.13                                      | 7.15                                      | NA                                        | 7.33                                      |
| Temperature, field                              | --                         | --                      | Deg C      | NA                                          | 9.5                                       | 2.8                                       | 12.7                                      | 9.6                                       | 2.4                                       | NA                                        | 12                                        | NA                                          | 9.4                                       | 3.3                                       | NA                                        | 12.9                                      |
| Turbidity (field)                               | --                         | --                      | NTU        | NA                                          | 2.6                                       | 16.1                                      | 1.6                                       | 2.09                                      | 8.89                                      | NA                                        | 1.93                                      | NA                                          | 1.26                                      | 7.68                                      | NA                                        | 1.34                                      |
| Volatile Organics (via EPA Method 537 Modified) |                            |                         |            |                                             |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                             |                                           |                                           |                                           |                                           |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2,3-Trichlorobenzene                          | --                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2,3-Trichloropropane                          | 42                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2,3-Trimethylbenzene                          | --                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Acrylonitrile                                   | 2.6                        | 2                       | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Bromobenzene                                    | 18                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Chlorobromomethane                              | --                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Cymene (p-Isopropyltoluene)                     | --                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Dibromomethane                                  | 80                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Ethyl ether                                     | 10                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Iodomethane                                     | --                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| N-Butylbenzene                                  | 80                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| N-Propylbenzene                                 | 80                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| tert-Butylbenzene                               | 80                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Tetrahydrofuran                                 | 95                         | 11,000                  | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| trans-1,4-Dichloro-2-butene                     | --                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                     | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2-Dichlorobenzene                             | 600                        | 13                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,4-Dichlorobenzene                             | 75                         | 17                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,4-Dioxane                                     | 7.2                        | 280                     | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,1,1-Trichloroethane                           | 200                        | 89                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 2-Hexanone                                      | 1,000                      | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,1,2,2-Tetrachloroethane                       | 8.5                        | 78                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Acetone                                         | 730                        | 1,700                   | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,1,2-Trichloroethane                           | 5                          | 330                     | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Bromodichloromethane                            | 80                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,1-Dichloroethane                              | 880                        | 740                     | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Bromoform                                       | 80                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,1-Dichloroethene                              | 7                          | 130                     | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Bromomethane (Methyl bromide)                   | 10                         | 5                       | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2-Dichloroethane                              | 5                          | 360                     | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Carbon disulfide                                | 800                        | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Carbon tetrachloride                            | 5                          | 38                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| cis-1,2-Dichloroethene                          | 70                         | 620                     | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Chlorobenzene                                   | 100                        | 25                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                   | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Chloroform (Trichloromethane)                   | 80                         | 350                     | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Trichloroethene                                 | 5                          | 200                     | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Chloromethane (Methyl chloride)                 | 260                        | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Tetrachloroethene                               | 5                          | 60                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| cis-1,3-Dichloropropene                         | --                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Vinyl chloride                                  | 2                          | 13                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 2-Methylnaphthalene                             | 260                        | 19                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Chloroethane                                    | 430                        | 1,100                   | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Benzene                                         | 5                          | 200                     | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Methyl acetate                                  | --                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Ethylbenzene                                    | 74                         | 18                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Methylene chloride                              | 5                          | 1,500                   | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Styrene                                         | 100                        | 80                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Toluene                                         | 790                        | 270                     | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| trans-1,3-Dichloropropene                       | --                         | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                   | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Naphthalene                                     | 520                        | 11                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Trifluorotrichloroethane (Freon 113)            | 170,000                    | 32                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                   | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                      | µg/L       | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE<br>2018) | Units | MW-18-103<br>08/29/19<br>MW-18-103 (082919) | MW-18-103<br>12/05/19<br>MW-18-103_120519 | MW-18-104<br>03/04/19<br>MW-18-104_030419 | MW-18-104<br>06/06/19<br>MW-18-104_060619 | MW-18-104<br>12/05/19<br>MW-18-104_120519 | MW-18-105<br>03/04/19<br>MW-18-105_030419 | MW-18-105<br>05/09/19<br>MW-18-105_050919 | MW-18-105<br>06/06/19<br>MW-18-105_060619 | MW-18-105<br>08/29/19<br>MW-18-105 (082919) | MW-18-105<br>12/05/19<br>MW-18-105_120519 | MW-18-106<br>03/04/19<br>MW-18-106_030419 | MW-18-106<br>05/10/19<br>MW-18-106_051019 | MW-18-106<br>06/06/19<br>MW-18-106_060619 |
|-------------------------------------------------------------------------------------------|----------------------------|----------------------------|-------|---------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|---------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                            |       |                                             |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                             |                                           |                                           |                                           |                                           |
| 1,2-Dichloropropane                                                                       | 5                          | 230                        | µg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                         | µg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Cyclohexane                                                                               | --                         | --                         | µg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Methyl cyclohexane                                                                        | --                         | --                         | µg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Dibromochloromethane                                                                      | 80                         | --                         | µg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Isopropyl benzene                                                                         | 800                        | 28                         | µg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| o-Xylene                                                                                  | --                         | --                         | µg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| m&p-Xylene                                                                                | --                         | --                         | µg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Total Xylenes                                                                             | --                         | --                         | µg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Hexachloroethane                                                                          | 7.3                        | 6.7                        | µg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                            |       |                                             |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                             |                                           |                                           |                                           |                                           |
| 1,4-Dioxane                                                                               | 7.2                        | 280                        | µg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                            |       |                                             |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                             |                                           |                                           |                                           |                                           |
| Antimony                                                                                  | 0.006                      | 0.13                       | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Arsenic                                                                                   | 0.01                       | 0.01                       | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Barium                                                                                    | 2                          | --                         | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Boron                                                                                     | 0.5                        | 7.2                        | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Cadmium                                                                                   | 0.005                      | --                         | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Chromium III                                                                              | 0.1                        | --                         | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                      | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Cobalt                                                                                    | 0.04                       | 0.1                        | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Copper                                                                                    | 1                          | --                         | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Lead                                                                                      | 0.004                      | --                         | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Manganese                                                                                 | 0.05                       | --                         | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Mercury                                                                                   | 0.002                      | 0.0000013                  | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Nickel                                                                                    | 0.1                        | 0.12                       | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Selenium                                                                                  | 0.05                       | 0.005                      | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Silver                                                                                    | 0.034                      | 0.0002                     | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Vanadium                                                                                  | 0.0045                     | 0.027                      | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Zinc                                                                                      | 2.4                        | 0.26                       | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                            |       |                                             |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                             |                                           |                                           |                                           |                                           |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                       | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Chromium (dissolved)                                                                      | --                         | 0.16                       | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Copper (dissolved)                                                                        | 1                          | 0.02                       | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                      | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                       | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                      | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                            |       |                                             |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                             |                                           |                                           |                                           |                                           |
| Nitrate (as N)                                                                            | 10                         | --                         | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Phosphorus                                                                                | 63                         | --                         | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Sulfate                                                                                   | 250                        | --                         | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Total dissolved solids (TDS)                                                              | 500                        | --                         | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                         | mg/L  | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                        | NA                                        | NA                                        | NA                                        |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                            |       |                                             |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                             |                                           |                                           |                                           |                                           |
| 4:2 FTS                                                                                   | --                         | --                         | ng/L  | <9.6                                        | <8                                        | <7.7                                      | <8                                        | <8                                        | <7.7 [<7.7]                               | <8                                        | <8                                        | <7.4                                        | <8                                        | <7.7                                      | <8                                        | <8                                        |
| 6:2 FTS                                                                                   | --                         | --                         | ng/L  | <9.6                                        | <8                                        | <7.7                                      | <8                                        | <8                                        | <7.7 [<7.7]                               | <8                                        | <8                                        | <7.4                                        | <8                                        | <7.7                                      | <8                                        | <8                                        |
| 8:2 FTS                                                                                   | --                         | --                         | ng/L  | <9.6                                        | <8                                        | <7.7                                      | <8                                        | <8                                        | <7.7 [<7.7]                               | <8                                        | <8                                        | <7.4                                        | <8                                        | <7.7                                      | <8                                        | <8                                        |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                         | ng/L  | <24                                         | <20                                       | <19                                       | <20                                       | <20                                       | <19 [<19]                                 | <20                                       | <20                                       | <19                                         | <20                                       | <19                                       | <20                                       | <20                                       |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                         | ng/L  | <24                                         | <20                                       | <19                                       | <20                                       | <20                                       | <19 [<19]                                 | <20                                       | <20                                       | <19                                         | <20                                       | <19                                       | <20                                       | <20                                       |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                         | ng/L  | 3.59 J                                      | 4.25                                      | 1.85 J                                    | 2.77 J                                    | 1.88 J                                    | 4.44 [4.67]                               | 4.63                                      | 4.55                                      | 4.34                                        | 4.64                                      | 2.32 J                                    | 2.77 J                                    | 2.42 J                                    |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                         | ng/L  | <9.6                                        | <8                                        | 7.85                                      | 5.77 J                                    | <8                                        | 8.56 [8.96]                               | 5.62 J                                    | 4.86 J                                    | 4.3 J                                       | 18.8                                      | 19.2                                      | 9.61                                      | 11.1                                      |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                         | ng/L  | <4.8                                        | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8 [<3.8]                               | <4                                        | <4                                        | <3.7                                        | <4                                        | <3.8                                      | <4                                        | <4                                        |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                         | ng/L  | <4.8                                        | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8 [<3.8]                               | <4                                        | <4                                        | <3.7                                        | <4                                        | <3.8                                      | <4                                        | <4                                        |
| Perfluorododecanoic acid (PFDoA)                                                          | --                         | --                         | ng/L  | <4.8                                        | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8 [<3.8]                               | <4                                        | <4                                        | <3.7                                        | <4                                        | <3.8                                      | <4                                        | <4                                        |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                     | --                         | --                         | ng/L  | <4.8                                        | <4                                        | <3.8                                      | 1.25 J                                    | <4                                        | <3.8 [<3.8]                               | <4                                        | <4                                        | <3.7                                        | <4                                        | <3.8                                      | <4                                        | <4                                        |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                         | ng/L  | <4.8                                        | <4                                        | <3.8                                      | 1.51 J                                    | <4                                        | 1.61 J [1.68 J]                           | <4                                        | <4                                        | <3.7                                        | 3.65 J                                    | 6.5                                       | 2.09 J                                    | 1.68 J                                    |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                         | ng/L  | 32.1                                        | 20.4                                      | <3.8                                      | 2.89 J                                    | 1.34 J                                    | 2.48 J [2.44 J]                           | 2.17 J                                    | 1.85 J                                    | 1.97 J                                      | 3.42 J                                    | 16.4                                      | 10.9                                      | 15.4                                      |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                         | ng/L  | <4.8                                        | <4                                        | 1.97 J                                    | 1.91 J                                    | <4                                        | 2.17 J [2.13 J]                           | 1.15 J                                    | <4                                        | <3.7                                        | 4.17                                      | 6.52                                      | 2.41 J                                    | 2.38 J                                    |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                         | ng/L  | <4.8                                        | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8 [<3.8]                               | <4                                        | <4                                        | <3.7                                        | <4                                        | <3.8                                      | <4                                        | <4                                        |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                         | ng/L  | <4.8                                        | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8 [<3.8]                               | <4                                        | <4                                        | <3.7                                        | <4                                        | 2.46 J                                    | <4                                        | <4                                        |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                         | ng/L  | <4.8                                        | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8 [<3.8]                               | <4                                        | <4                                        | <3.7                                        | <4                                        | <3.8                                      | <4                                        | <4                                        |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                         | ng/L  | <4.8                                        | 3.01 J                                    | 2.5 J                                     | 13.8                                      | 10.5                                      | 3.28 J [3.72 J]                           | 9.78                                      | 7.5                                       | 7.49                                        | 23.8                                      | 51.6                                      | 14.5                                      | 16.7                                      |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                     | ng/L  | <4.8                                        | <4                                        | 3.85                                      | 3.85 J                                    | <4                                        | 4.16 [4.14]                               | 2.32 J                                    | 1.49 J                                    | <3.7                                        | 6.86                                      | 10.7                                      | 3.01 J                                    | 3.83 J                                    |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                         | ng/L  | <4.8                                        | 3.2 J                                     | 3.05 J                                    | <3.8                                      | <4                                        | <3.8 [<3.8]                               | <4                                        | <4                                        | <3.7                                        | <4                                        | <3.8                                      | <4                                        | 1.02 J                                    |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                         | ng/L  | <4.8                                        | <4                                        | 1.73 J                                    | 1.52 J                                    | <4                                        | 1.82 J [1.84 J]                           | <4                                        | <4                                        | <3.7                                        | 3.87 J                                    | 18.3                                      | 4.09                                      | 3.64 J                                    |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                         | ng/L  | <4.8                                        | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8 [<3.8]                               | <4                                        | <4                                        | <3.7                                        | <4                                        | <3.8                                      | <4                                        | <4                                        |
| Perfluorotridecanoic Acid (PFTriA)                                                        | --                         | --                         | ng/L  | <4.8                                        | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8 [<3.8]                               | <4                                        | <4                                        | <3.7                                        | <4                                        | <3.8                                      | <4                                        | <4                                        |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                         | ng/L  | <4.8                                        | <4                                        | <3.8                                      | <4                                        | <4                                        | <3.8 [<3.8]                               | <4                                        | <4                                        | <3.7                                        | <4                                        | <3.8                                      | <4                                        | <4                                        |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                         | ng/L  | 38.89 J                                     | 27.70 J                                   | 13.40 J                                   | 17.62 J                                   | 3.22 J                                    | 21.08 J [21.72 J]                         | 13.57 J                                   | 11.26 J                                   | 10.61 J                                     | 38.55 J                                   | 71.70 J                                   | 31.87 J                                   | 37.64 J                                   |
| Combined PFOS and PFOA                                                                    | 70                         | --                         | ng/L  | <4.8                                        | 3.01 J                                    | 6.35 J                                    | 17.65 J                                   | 10.5                                      | 7.44 J [7.86 J]                           | 12.1 J                                    | 8.99 J                                    | 7.49                                        | 30.66                                     | 62.3                                      | 17.51 J                                   | 20.53 J                                   |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units      | MW-18-106<br>12/05/19<br>MW-18-106_120519 | MW-19<br>06/13/19<br>MW-19_061319 | MW-19-107<br>05/09/19<br>MW-19-107_050919 | MW-19-107<br>06/05/19<br>MW-19-107_060519 | MW-19-107<br>12/03/19<br>MW-19-107_120319 | MW-19-108<br>05/09/19<br>MW-19-108_050919 | MW-19-108<br>06/05/19<br>MW-19-108_060519 | MW-19-108<br>12/03/19<br>MW-19-108_120319 | MW-19-109<br>06/04/19<br>MW-19-109_060419 | MW-19-109<br>06/20/19<br>MW-19-109_20190620 | MW-19-109<br>08/27/19<br>MW-19-109_20190827 | MW-19-109<br>12/05/19<br>MW-19-109_120519 | MW-19-111<br>12/03/19<br>MW-19-111_120319 |
|-------------------------------------------------|----------------------------|-------------------------|------------|-------------------------------------------|-----------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|---------------------------------------------|---------------------------------------------|-------------------------------------------|-------------------------------------------|
| Field                                           |                            |                         |            |                                           |                                   |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                             |                                             |                                           |                                           |
| Conductivity                                    | --                         | --                      | mS/cm      | 0.439                                     | 0.243                             | NA                                        | 0.92                                      | 0.73                                      | NA                                        | 1.39                                      | 1.11                                      | 3.31                                      | NA                                          | 1.89                                        | 2.13                                      | 1.2                                       |
| Dissolved oxygen (DO), field                    | --                         | --                      | mg/L       | 5.94                                      | 4.86                              | NA                                        | 0.16                                      | 0.66                                      | NA                                        | 0.21                                      | 2.11                                      | 0.2                                       | NA                                          | 8.08                                        | 6.95                                      | 1                                         |
| Oxidation reduction potential (ORP), field      | --                         | --                      | millivolts | 57.2                                      | 221.3                             | NA                                        | 4.8                                       | 9.6                                       | NA                                        | 88.4                                      | 43.4                                      | -63.8                                     | NA                                          | 72.3                                        | 31.5                                      | 62.2                                      |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0              | s.u.       | 7.02                                      | 7.46                              | NA                                        | 6.8                                       | 6.78                                      | NA                                        | 6.69                                      | 6.66                                      | 6.44                                      | NA                                          | 7.01                                        | 6.98                                      | 6.71                                      |
| Temperature, field                              | --                         | --                      | Deg C      | 9.2                                       | 13.9                              | NA                                        | 12.4                                      | 12                                        | NA                                        | 12.3                                      | 11.7                                      | 16.8                                      | NA                                          | 19.2                                        | 7.7                                       | 11.2                                      |
| Turbidity (field)                               | --                         | --                      | NTU        | 2.15                                      | 3.52                              | NA                                        | 2.23                                      | 1.59                                      | NA                                        | 2.26                                      | 1.71                                      | 5.69                                      | NA                                          | 38.7                                        | 174                                       | 2.11                                      |
| Volatile Organics (via EPA Method 537 Modified) |                            |                         |            |                                           |                                   |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                             |                                             |                                           |                                           |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 1,2,3-Trichlorobenzene                          | --                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 1,2,3-Trichloropropane                          | 42                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 1,2,3-Trimethylbenzene                          | --                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Acrylonitrile                                   | 2.6                        | 2                       | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Bromobenzene                                    | 18                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Chlorobromomethane                              | --                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Cymene (p-Isopropyltoluene)                     | --                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Dibromomethane                                  | 80                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Ethyl ether                                     | 10                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Iodomethane                                     | --                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| N-Butylbenzene                                  | 80                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| N-Propylbenzene                                 | 80                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| tert-Butylbenzene                               | 80                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Tetrahydrofuran                                 | 95                         | 11,000                  | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| trans-1,4-Dichloro-2-butene                     | --                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                     | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 1,2-Dichlorobenzene                             | 600                        | 13                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 1,4-Dichlorobenzene                             | 75                         | 17                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 1,4-Dioxane                                     | 7.2                        | 280                     | µg/L       | NA                                        | <1                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | 34                                          | 29                                          | 4                                         | NA                                        |
| 1,1,1-Trichloroethane                           | 200                        | 89                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 2-Hexanone                                      | 1,000                      | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 1,1,2,2-Tetrachloroethane                       | 8.5                        | 78                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Acetone                                         | 730                        | 1,700                   | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 1,1,2-Trichloroethane                           | 5                          | 330                     | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Bromodichloromethane                            | 80                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 1,1-Dichloroethane                              | 880                        | 740                     | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Bromoform                                       | 80                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 1,1-Dichloroethene                              | 7                          | 130                     | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Bromomethane (Methyl bromide)                   | 10                         | 5                       | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 1,2-Dichloroethane                              | 5                          | 360                     | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Carbon disulfide                                | 800                        | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Carbon tetrachloride                            | 5                          | 38                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| cis-1,2-Dichloroethene                          | 70                         | 620                     | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Chlorobenzene                                   | 100                        | 25                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                   | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Chloroform (Trichloromethane)                   | 80                         | 350                     | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Trichloroethene                                 | 5                          | 200                     | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Chloromethane (Methyl chloride)                 | 260                        | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Tetrachloroethene                               | 5                          | 60                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| cis-1,3-Dichloropropene                         | --                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Vinyl chloride                                  | 2                          | 13                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 2-Methylnaphthalene                             | 260                        | 19                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Chloroethane                                    | 430                        | 1,100                   | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Benzene                                         | 5                          | 200                     | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Methyl acetate                                  | --                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Ethylbenzene                                    | 74                         | 18                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Methylene chloride                              | 5                          | 1,500                   | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Styrene                                         | 100                        | 80                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Toluene                                         | 790                        | 270                     | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| trans-1,3-Dichloropropene                       | --                         | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                   | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Naphthalene                                     | 520                        | 11                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Trifluorotrichloroethane (Freon 113)            | 170,000                    | 32                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                   | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                      | µg/L       | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |

See notes on last page.



Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units | MW-18-106<br>12/05/19<br>MW-18-106_120519 | MW-19<br>06/13/19<br>MW-19_061319 | MW-19-107<br>05/09/19<br>MW-19-107_050919 | MW-19-107<br>06/05/19<br>MW-19-107_060519 | MW-19-107<br>12/03/19<br>MW-19-107_120319 | MW-19-108<br>05/09/19<br>MW-19-108_050919 | MW-19-108<br>06/05/19<br>MW-19-108_060519 | MW-19-108<br>12/03/19<br>MW-19-108_120319 | MW-19-109<br>06/04/19<br>MW-19-109_060419 | MW-19-109<br>06/20/19<br>MW-19-109_20190620 | MW-19-109<br>08/27/19<br>MW-19-109_20190827 | MW-19-109<br>12/05/19<br>MW-19-109_120519 | MW-19-111<br>12/03/19<br>MW-19-111_120319 |
|-------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------|-------------------------------------------|-----------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|---------------------------------------------|---------------------------------------------|-------------------------------------------|-------------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                         |       |                                           |                                   |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                             |                                             |                                           |                                           |
| 1,2-Dichloropropane                                                                       | 5                          | 230                     | µg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                      | µg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Cyclohexane                                                                               | --                         | --                      | µg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Methyl cyclohexane                                                                        | --                         | --                      | µg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Dibromochloromethane                                                                      | 80                         | --                      | µg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Isopropyl benzene                                                                         | 800                        | 28                      | µg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| o-Xylene                                                                                  | --                         | --                      | µg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| m&p-Xylene                                                                                | --                         | --                      | µg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Total Xylenes                                                                             | --                         | --                      | µg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Hexachloroethane                                                                          | 7.3                        | 6.7                     | µg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                         |       |                                           |                                   |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                             |                                             |                                           |                                           |
| 1,4-Dioxane                                                                               | 7.2                        | 280                     | µg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                         |       |                                           |                                   |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                             |                                             |                                           |                                           |
| Antimony                                                                                  | 0.006                      | 0.13                    | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Arsenic                                                                                   | 0.01                       | 0.01                    | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Barium                                                                                    | 2                          | --                      | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Boron                                                                                     | 0.5                        | 7.2                     | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Cadmium                                                                                   | 0.005                      | --                      | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Chromium III                                                                              | 0.1                        | --                      | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                   | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Cobalt                                                                                    | 0.04                       | 0.1                     | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Copper                                                                                    | 1                          | --                      | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Lead                                                                                      | 0.004                      | --                      | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Manganese                                                                                 | 0.05                       | --                      | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Mercury                                                                                   | 0.002                      | 0.0000013               | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Nickel                                                                                    | 0.1                        | 0.12                    | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Selenium                                                                                  | 0.05                       | 0.005                   | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Silver                                                                                    | 0.034                      | 0.0002                  | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Vanadium                                                                                  | 0.0045                     | 0.027                   | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Zinc                                                                                      | 2.4                        | 0.26                    | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                         |       |                                           |                                   |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                             |                                             |                                           |                                           |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                    | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Chromium (dissolved)                                                                      | --                         | 0.16                    | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Copper (dissolved)                                                                        | 1                          | 0.02                    | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                   | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                    | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                   | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                         |       |                                           |                                   |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                             |                                             |                                           |                                           |
| Nitrate (as N)                                                                            | 10                         | --                      | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | <0.5                                      | NA                                        |
| Phosphorus                                                                                | 63                         | --                      | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | 0.4                                       | NA                                        |
| Sulfate                                                                                   | 250                        | --                      | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Total dissolved solids (TDS)                                                              | 500                        | --                      | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | NA                                        | NA                                        |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                      | mg/L  | NA                                        | NA                                | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                          | NA                                          | 0.4                                       | NA                                        |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                         |       |                                           |                                   |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                             |                                             |                                           |                                           |
| 4:2 FTS                                                                                   | --                         | --                      | ng/L  | <8                                        | NA                                | <8                                        | <8                                        | <8                                        | <8                                        | <8                                        | <8                                        | NA                                        | NA                                          | NA                                          | NA                                        | <8                                        |
| 6:2 FTS                                                                                   | --                         | --                      | ng/L  | <8                                        | NA                                | <8                                        | <8                                        | <8                                        | <8                                        | <8                                        | <8                                        | NA                                        | NA                                          | NA                                          | NA                                        | <8                                        |
| 8:2 FTS                                                                                   | --                         | --                      | ng/L  | <8                                        | NA                                | <8                                        | <8                                        | <8                                        | <8                                        | <8                                        | <8                                        | NA                                        | NA                                          | NA                                          | NA                                        | <8                                        |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                      | ng/L  | <20                                       | NA                                | <20                                       | <20                                       | <20                                       | <20                                       | <20                                       | <20                                       | NA                                        | NA                                          | NA                                          | NA                                        | <20                                       |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                      | ng/L  | <20                                       | NA                                | <20                                       | <20                                       | <20                                       | <20                                       | <20                                       | <20                                       | NA                                        | NA                                          | NA                                          | NA                                        | <20                                       |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                      | ng/L  | 1.43 J                                    | NA                                | 2.07 J                                    | 2.02 J                                    | 2.14 J                                    | 1.15 J                                    | 1.66 J                                    | 1.11 J                                    | NA                                        | NA                                          | NA                                          | NA                                        | 1.04 J                                    |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                      | ng/L  | <8                                        | NA                                | 4.02 J                                    | 3.86 J                                    | 5.53 J                                    | 3.09 J                                    | 2.98 J                                    | 2.47 J                                    | NA                                        | NA                                          | NA                                          | NA                                        | 3.76 J                                    |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                      | ng/L  | <4                                        | NA                                | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | NA                                        | NA                                          | NA                                          | NA                                        | <4                                        |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                      | ng/L  | <4                                        | NA                                | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | NA                                        | NA                                          | NA                                          | NA                                        | <4                                        |
| Perfluorododecanoic acid (PFDoA)                                                          | --                         | --                      | ng/L  | <4                                        | NA                                | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | NA                                        | NA                                          | NA                                          | NA                                        | <4                                        |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                     | --                         | --                      | ng/L  | <4                                        | NA                                | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | NA                                        | NA                                          | NA                                          | NA                                        | <4                                        |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                      | ng/L  | <4                                        | NA                                | <4                                        | 1.32 J                                    | 1.2 J                                     | <4                                        | 1.54 J                                    | 1.37 J                                    | NA                                        | NA                                          | NA                                          | NA                                        | <4                                        |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                      | ng/L  | 2.09 J                                    | NA                                | 4.34                                      | 4.27                                      | 5.96                                      | <4                                        | 1.19 J                                    | 1.56 J                                    | NA                                        | NA                                          | NA                                          | NA                                        | <4                                        |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                      | ng/L  | <4                                        | NA                                | 1.59 J                                    | 1.84 J                                    | 1.22 J                                    | 1.86 J                                    | 1.52 J                                    | 1.87 J                                    | NA                                        | NA                                          | NA                                          | NA                                        | 1.08 J                                    |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                      | ng/L  | <4                                        | NA                                | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | NA                                        | NA                                          | NA                                          | NA                                        | <4                                        |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                      | ng/L  | <4                                        | NA                                | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | NA                                        | NA                                          | NA                                          | NA                                        | <4                                        |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                      | ng/L  | <4                                        | NA                                | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | NA                                        | NA                                          | NA                                          | NA                                        | <4                                        |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                      | ng/L  | 2.14 J                                    | NA                                | 3.12 J                                    | <4                                        | 2.06 J                                    | 6.14                                      | 5.49                                      | 6.89                                      | NA                                        | NA                                          | NA                                          | NA                                        | <4                                        |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                  | ng/L  | <4                                        | NA                                | 6.15                                      | 5.99                                      | 3.37 J                                    | 7.58                                      | 6.6                                       | 7.1                                       | NA                                        | NA                                          | NA                                          | NA                                        | 2.73 J                                    |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                      | ng/L  | <4                                        | NA                                | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | NA                                        | NA                                          | NA                                          | NA                                        | <4                                        |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                      | ng/L  | <4                                        | NA                                | 4.75                                      | 4.91                                      | 3.36 J                                    | <4                                        | <4                                        | <4                                        | NA                                        | NA                                          | NA                                          | NA                                        | <4                                        |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                      | ng/L  | <4                                        | NA                                | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | NA                                        | NA                                          | NA                                          | NA                                        | <4                                        |
| Perfluorotridecanoic Acid (PFTriA)                                                        | --                         | --                      | ng/L  | <4                                        | NA                                | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | NA                                        | NA                                          | NA                                          | NA                                        | <4                                        |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                      | ng/L  | <4                                        | NA                                | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | <4                                        | NA                                        | NA                                          | NA                                          | NA                                        | <4                                        |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                      | ng/L  | 3.52 J                                    | NA                                | 16.77 J                                   | 18.22 J                                   | 19.41 J                                   | 6.10 J                                    | 8.89 J                                    | 8.38 J                                    | NA                                        | NA                                          | NA                                          | NA                                        | 5.88 J                                    |
| Combined PFOS and PFOA                                                                    | 70                         | --                      | ng/L  | 2.14 J                                    | NA                                | 9.27 J                                    | 5.99                                      | 5.43 J                                    | 13.72                                     | 12.09                                     | 13.99                                     | NA                                        | NA                                          | NA                                          | NA                                        | 2.73 J                                    |

See notes on last page.



Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE<br>2018) | Units      | MW-19-112<br>12/04/19<br>MW-19-112_120419 | MW-19-113<br>12/05/19<br>MW-19-113_120519 | MW-19-114<br>12/05/19<br>MW-19-114_120519 | MW-19-115<br>12/20/19<br>MW-19-115_122019 | MW-19-116<br>12/20/19<br>MW-19-116_122019 | MW-19-120<br>12/04/19<br>MW-19-120_120419 | MW-19-121<br>12/04/19<br>MW-19-121_120419 | MW-19-122<br>12/03/19<br>MW-19-122_120319 | MW-19-123<br>12/03/19<br>MW-19-123_120319 | MW-19-124<br>12/04/19<br>MW-19-124_120419 | MW-19-125*<br>12/04/19<br>MW-19-125_120419 | MW-22<br>06/06/19<br>MW-22_060619 | MW-23<br>06/12/19<br>MW-23_061219 | MW-23<br>12/06/19<br>MW-23_120619 |
|-------------------------------------------------|----------------------------|----------------------------|------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|--------------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Field                                           |                            |                            |            |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                            |                                   |                                   |                                   |
| Conductivity                                    | --                         | --                         | mS/cm      | 5.19                                      | 1.3                                       | 0.411                                     | 2.63                                      | 1.92                                      | 2.08                                      | 1.28                                      | 3.9                                       | 0.81                                      | 2.15                                      | 1.27                                       | 3.28                              | 1.24                              | 1.12                              |
| Dissolved oxygen (DO), field                    | --                         | --                         | mg/L       | 0.46                                      | 3.71                                      | 0.29                                      | 0.68                                      | 0.19                                      | 0.63                                      | 0.75                                      | 0.97                                      | 3.14                                      | 0.67                                      | 1.03                                       | 0.27                              | 0.3                               | 0.92                              |
| Oxidation reduction potential (ORP), field      | --                         | --                         | millivolts | 10.3                                      | 115.2                                     | 43.4                                      | 40.5                                      | 20.2                                      | -133                                      | -207.4                                    | -0.8                                      | 144.7                                     | -209.7                                    | -404.4                                     | 12.2                              | -89.6                             | -55.1                             |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0                 | s.u.       | 6.38                                      | 7.27                                      | 7.25                                      | 7.04                                      | 7.1                                       | 6.89                                      | 7.06                                      | 6.77                                      | 7.8                                       | 6.87                                      | 7.58                                       | 6.9                               | 7.1                               | 7.22                              |
| Temperature, field                              | --                         | --                         | Deg C      | 12.4                                      | 12.4                                      | 9.6                                       | 11.5                                      | 11.9                                      | 7.1                                       | 9.5                                       | 11.7                                      | 6.7                                       | 8.6                                       | 7.8                                        | 15.8                              | 14.7                              | 11.5                              |
| Turbidity (field)                               | --                         | --                         | NTU        | 1.65                                      | 1.79                                      | 1.78                                      | 38.2                                      | 6.29                                      | 39.7                                      | 7.68                                      | 2.39                                      | 2.92                                      | 22.4                                      | 67.1                                       | 11.1                              | 5.93                              | 2.89                              |
| Volatile Organics (via EPA Method 537 Modified) |                            |                            |            |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                            |                                   |                                   |                                   |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 1,2,3-Trichlorobenzene                          | --                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 1,2,3-Trichloropropane                          | 42                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 1,2,3-Trimethylbenzene                          | --                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Acrylonitrile                                   | 2.6                        | 2                          | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Bromobenzene                                    | 18                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Chlorobromomethane                              | --                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Cymene (p-Isopropyltoluene)                     | --                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Dibromomethane                                  | 80                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Ethyl ether                                     | 10                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Iodomethane                                     | --                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| N-Butylbenzene                                  | 80                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| N-Propylbenzene                                 | 80                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| tert-Butylbenzene                               | 80                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Tetrahydrofuran                                 | 95                         | 11,000                     | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| trans-1,4-Dichloro-2-butene                     | --                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                        | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 1,2-Dichlorobenzene                             | 600                        | 13                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 1,4-Dichlorobenzene                             | 75                         | 17                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 1,4-Dioxane                                     | 7.2                        | 280                        | µg/L       | NA                                        | NA                                        | NA                                        | 11                                        | 51                                        | 165                                       | 99                                        | 43                                        | 52                                        | 220 Y                                     | NA                                         | NA                                | NA                                | NA                                |
| 1,1,1-Trichloroethane                           | 200                        | 89                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 2-Hexanone                                      | 1,000                      | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 1,1,2,2-Tetrachloroethane                       | 8.5                        | 78                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Acetone                                         | 730                        | 1,700                      | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 1,1,2-Trichloroethane                           | 5                          | 330                        | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Bromodichloromethane                            | 90                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 1,1-Dichloroethane                              | 880                        | 740                        | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Bromoform                                       | 80                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 1,1-Dichloroethene                              | 7                          | 130                        | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Bromomethane (Methyl bromide)                   | 10                         | 5                          | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 1,2-Dichloroethane                              | 5                          | 360                        | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Carbon disulfide                                | 800                        | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Carbon tetrachloride                            | 5                          | 38                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| cis-1,2-Dichloroethene                          | 70                         | 620                        | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Chlorobenzene                                   | 100                        | 25                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                      | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Chloroform (Trichloromethane)                   | 90                         | 350                        | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Trichloroethene                                 | 5                          | 200                        | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Chloromethane (Methyl chloride)                 | 260                        | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Tetrachloroethene                               | 5                          | 60                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| cis-1,3-Dichloropropene                         | --                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Vinyl chloride                                  | 2                          | 13                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 2-Methylnaphthalene                             | 260                        | 19                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Chloroethane                                    | 430                        | 1,100                      | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Benzene                                         | 5                          | 200                        | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Methyl acetate                                  | --                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Ethylbenzene                                    | 74                         | 18                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Methylene chloride                              | 5                          | 1,500                      | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Styrene                                         | 100                        | 80                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Toluene                                         | 790                        | 270                        | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| trans-1,3-Dichloropropene                       | --                         | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                      | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Naphthalene                                     | 520                        | 11                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Trifluorotrichloroethane (Freon 113)            | 170,000                    | 32                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                      | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                         | µg/L       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE<br>2018) | Units | MW-19-112<br>12/04/19<br>MW-19-112_120419 | MW-19-113<br>12/05/19<br>MW-19-113_120519 | MW-19-114<br>12/05/19<br>MW-19-114_120519 | MW-19-115<br>12/20/19<br>MW-19-115_122019 | MW-19-116<br>12/20/19<br>MW-19-116_122019 | MW-19-120<br>12/04/19<br>MW-19-120_120419 | MW-19-121<br>12/04/19<br>MW-19-121_120419 | MW-19-122<br>12/03/19<br>MW-19-122_120319 | MW-19-123<br>12/03/19<br>MW-19-123_120319 | MW-19-124<br>12/04/19<br>MW-19-124_120419 | MW-19-125*<br>12/04/19<br>MW-19-125_120419 | MW-22<br>06/06/19<br>MW-22_060619 | MW-23<br>06/12/19<br>MW-23_061219 | MW-23<br>12/06/19<br>MW-23_120619 |
|-------------------------------------------------------------------------------------------|----------------------------|----------------------------|-------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|--------------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                            |       |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                            |                                   |                                   |                                   |
| 1,2-Dichloropropane                                                                       | 5                          | 230                        | µg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                         | µg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Cyclohexane                                                                               | --                         | --                         | µg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Methyl cyclohexane                                                                        | --                         | --                         | µg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Dibromochloromethane                                                                      | 80                         | --                         | µg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Isopropyl benzene                                                                         | 800                        | 28                         | µg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| o-Xylene                                                                                  | --                         | --                         | µg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| m&p-Xylene                                                                                | --                         | --                         | µg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Total Xylenes                                                                             | --                         | --                         | µg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Hexachloroethane                                                                          | 7.3                        | 6.7                        | µg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                            |       |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                            |                                   |                                   |                                   |
| 1,4-Dioxane                                                                               | 7.2                        | 280                        | µg/L  | NA                                        | NA                                        | NA                                        | 11                                        | 51                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | 0.15 J                                     | NA                                | NA                                | NA                                |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                            |       |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                            |                                   |                                   |                                   |
| Antimony                                                                                  | 0.006                      | 0.13                       | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Arsenic                                                                                   | 0.01                       | 0.01                       | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | 0.003                             | 0.011 [0.011]                     | NA                                |
| Barium                                                                                    | 2                          | --                         | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Boron                                                                                     | 0.5                        | 7.2                        | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Cadmium                                                                                   | 0.005                      | --                         | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Chromium III                                                                              | 0.1                        | --                         | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | <0.005                            | <0.005 [<0.005]                   | NA                                |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                      | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Cobalt                                                                                    | 0.04                       | 0.1                        | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Copper                                                                                    | 1                          | --                         | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Lead                                                                                      | 0.004                      | --                         | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Manganese                                                                                 | 0.05                       | --                         | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Mercury                                                                                   | 0.002                      | 0.0000013                  | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Nickel                                                                                    | 0.1                        | 0.12                       | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | 0.008                             | <0.005 [<0.005]                   | NA                                |
| Selenium                                                                                  | 0.05                       | 0.005                      | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Silver                                                                                    | 0.034                      | 0.0002                     | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Vanadium                                                                                  | 0.0045                     | 0.027                      | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | <0.005                            | <0.005 [<0.005]                   | NA                                |
| Zinc                                                                                      | 2.4                        | 0.26                       | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                            |       |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                            |                                   |                                   |                                   |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                       | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | <0.002                            | NA                                | NA                                |
| Chromium (dissolved)                                                                      | --                         | 0.16                       | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | <0.005                            | NA                                | NA                                |
| Copper (dissolved)                                                                        | 1                          | 0.02                       | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | 0.006                             | NA                                | NA                                |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                      | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | <0.003                            | NA                                | NA                                |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                       | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | <0.005                            | NA                                | NA                                |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                      | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | <0.005                            | NA                                | NA                                |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                            |       |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                            |                                   |                                   |                                   |
| Nitrate (as N)                                                                            | 10                         | --                         | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Phosphorus                                                                                | 63                         | --                         | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Sulfate                                                                                   | 250                        | --                         | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Total dissolved solids (TDS)                                                              | 500                        | --                         | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                         | mg/L  | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | NA                                | NA                                |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                            |       |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                           |                                            |                                   |                                   |                                   |
| 4:2 FTS                                                                                   | --                         | --                         | ng/L  | <8                                        | <8                                        | <8                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <8 [<8]                           | <8.2                              |
| 6:2 FTS                                                                                   | --                         | --                         | ng/L  | <8                                        | <8                                        | <8                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <8 [<8]                           | <8.2                              |
| 8:2 FTS                                                                                   | --                         | --                         | ng/L  | <8                                        | <8                                        | <8                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <8 [<8]                           | <8.2                              |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                         | ng/L  | <20                                       | <20                                       | <20                                       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <20 [<20]                         | <20                               |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                         | ng/L  | <20                                       | <20                                       | <20                                       | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <20 [<20]                         | <20                               |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                         | ng/L  | <4                                        | 2.51 J                                    | 1.01 J                                    | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                         | ng/L  | 4.44 J                                    | 11.4                                      | <8                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <8 [<8]                           | <8.2                              |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                         | ng/L  | <4                                        | <4                                        | <4                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                         | ng/L  | <4                                        | <4                                        | <4                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Perfluorododecanoic acid (PFDoA)                                                          | --                         | --                         | ng/L  | <4                                        | <4                                        | <4                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                     | --                         | --                         | ng/L  | <4                                        | 2.63 J                                    | <4                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                         | ng/L  | <4                                        | 5.31                                      | <4                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                         | ng/L  | <4                                        | 2.59 J                                    | <4                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                         | ng/L  | 1.38 J                                    | 6.21                                      | <4                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                         | ng/L  | <4                                        | <4                                        | <4                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                         | ng/L  | <4                                        | <4                                        | <4                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                         | ng/L  | <4                                        | <4                                        | <4                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                         | ng/L  | <4                                        | 20.1                                      | 3.62 J                                    | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                     | ng/L  | <4                                        | 9.72                                      | <4                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                         | ng/L  | <4                                        | <4                                        | <4                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                         | ng/L  | 5.25                                      | 5                                         | <4                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                         | ng/L  | <4                                        | <4                                        | <4                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Perfluorotridecanoic Acid (PFTriA)                                                        | --                         | --                         | ng/L  | <4                                        | <4                                        | <4                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                         | ng/L  | <4                                        | <4                                        | <4                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                         | ng/L  | 11.07 J                                   | 35.65 J                                   | 1.01 J                                    | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <20 [<20]                         | <20                               |
| Combined PFOS and PFOA                                                                    | 70                         | --                         | ng/L  | <4                                        | 29.82                                     | 3.62 J                                    | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                        | NA                                         | NA                                | <4 [<4]                           | <4.1                              |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units      | MW-91-2<br>06/12/19<br>MW-91-2_061219 | MW-91-2R<br>12/06/19<br>MW-91-2R_120619 | MW-91-5<br>06/06/19<br>MW-91-5_060619 | MW-91-6<br>06/06/19<br>MW-91-6_060619 | MWBP-10-UST5-6<br>06/05/19<br>MWBP-10-UST5-6_060519 | MWBP-11-UST1-4<br>06/05/19<br>MWBP-11-UST1-4_060519 | MWBP-12A-UST1-4<br>06/05/19<br>MWBP-12A-UST1-4_060519 | MWBP-12-UST1-4<br>06/05/19<br>MWBP-12-UST1-4_060519 | P2-SB-20<br>06/04/19<br>P2-SB-20_060419 | P6-MW-01<br>05/02/19<br>P6-MW-01-050219 | P6-SB-07<br>06/06/19<br>P6-SB-07_060619 | P6-SB-07<br>08/27/19<br>P6-SB-07_20190827 |
|-------------------------------------------------|----------------------------|-------------------------|------------|---------------------------------------|-----------------------------------------|---------------------------------------|---------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|
| Field                                           |                            |                         |            |                                       |                                         |                                       |                                       |                                                     |                                                     |                                                       |                                                     |                                         |                                         |                                         |                                           |
| Conductivity                                    | --                         | --                      | mS/cm      | 0.429                                 | 1.1                                     | 1.26                                  | 1.35                                  | 3.13                                                | 94                                                  | 3.89                                                  | 2.31                                                | 0.261                                   | NA                                      | 0.72                                    | NA                                        |
| Dissolved oxygen (DO), field                    | --                         | --                      | mg/L       | 4.93                                  | 0.36                                    | 0.36                                  | 0.95                                  | 0.4                                                 | 0.34                                                | 0.33                                                  | 0.23                                                | 18.65                                   | NA                                      | 0.29                                    | NA                                        |
| Oxidation reduction potential (ORP), field      | --                         | --                      | millivolts | 171.1                                 | -99.4                                   | -66.6                                 | 136.2                                 | -77.6                                               | -56.6                                               | -80.4                                                 | -143.1                                              | -102.2                                  | NA                                      | -59.3                                   | NA                                        |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0              | s.u.       | 7.66                                  | 7.27                                    | 7.14                                  | 7.52                                  | 7.05                                                | 10.31                                               | 6.84                                                  | 7.36                                                | 7.46                                    | NA                                      | 7.39                                    | NA                                        |
| Temperature, field                              | --                         | --                      | Deg C      | 15.3                                  | 12.7                                    | 16.6                                  | 17.1                                  | 15.1                                                | 14.6                                                | 17.6                                                  | 14.4                                                | 14.7                                    | NA                                      | 14.2                                    | NA                                        |
| Turbidity (field)                               | --                         | --                      | NTU        | 3.35                                  | 11.7                                    | 21.7                                  | 8.04                                  | 9.95                                                | 1.88                                                | 17.8                                                  | 8.86                                                | 0.02                                    | NA                                      | 7.88                                    | NA                                        |
| Volatile Organics (via EPA Method 537 Modified) |                            |                         |            |                                       |                                         |                                       |                                       |                                                     |                                                     |                                                       |                                                     |                                         |                                         |                                         |                                           |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2,3-Trichlorobenzene                          | --                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <5                                                  | <5                                                  | <5 [<5]                                               | <30                                                 | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2,3-Trichloropropane                          | 42                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2,3-Trimethylbenzene                          | --                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Acrylonitrile                                   | 2.6                        | 2                       | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <2                                                  | <2                                                  | <2 [<2]                                               | <10 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| Bromobenzene                                    | 18                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Chlorobromomethane                              | --                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Cymene (p-Isopropyltoluene)                     | --                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <5                                                  | <5                                                  | <5 [<5]                                               | <30 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| Dibromomethane                                  | 80                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <5                                                  | <5                                                  | <5 [<5]                                               | <30 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| Ethyl ether                                     | 10                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <10                                                 | <10                                                 | <10 [<10]                                             | <50 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| Iodomethane                                     | --                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| N-Butylbenzene                                  | 80                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| N-Propylbenzene                                 | 80                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| tert-Butylbenzene                               | 80                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Tetrahydrofuran                                 | 95                         | 11,000                  | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <90                                                 | <90                                                 | <90 [<90]                                             | <450 Y                                              | NA                                      | NA                                      | NA                                      | NA                                        |
| trans-1,4-Dichloro-2-butene                     | --                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <5                                                  | <5                                                  | <5 [<5]                                               | <30 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                     | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2-Dichlorobenzene                             | 600                        | 13                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,4-Dichlorobenzene                             | 75                         | 17                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,4-Dioxane                                     | 7.2                        | 280                     | µg/L       | <1                                    | NA                                      | <1                                    | <1                                    | NA                                                  | NA                                                  | NA                                                    | <1                                                  | <1                                      | NA                                      | NA                                      | NA                                        |
| 1,1,1-Trichloroethane                           | 200                        | 89                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| 2-Hexanone                                      | 1,000                      | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <50                                                 | <50                                                 | <50 [<50]                                             | <250 Y                                              | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,1,1,2,2-Tetrachloroethane                     | 8.5                        | 78                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Acetone                                         | 730                        | 1,700                   | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <50                                                 | <50                                                 | <50 [<50]                                             | <250 Y                                              | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,1,2-Trichloroethane                           | 5                          | 330                     | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Bromodichloromethane                            | 80                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,1-Dichloroethane                              | 880                        | 740                     | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Bromoform                                       | 80                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,1-Dichloroethene                              | 7                          | 130                     | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Bromomethane (Methyl bromide)                   | 10                         | 5                       | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <5                                                  | <5                                                  | <5 [<5]                                               | <30 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2-Dichloroethane                              | 5                          | 360                     | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Carbon disulfide                                | 800                        | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <5                                                  | <5                                                  | <5 [<5]                                               | <30 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| Carbon tetrachloride                            | 5                          | 38                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| cis-1,2-Dichloroethene                          | 70                         | 620                     | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Chlorobenzene                                   | 100                        | 25                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                   | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Chloroform (Trichloromethane)                   | 80                         | 350                     | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Trichloroethene                                 | 5                          | 200                     | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Chloromethane (Methyl chloride)                 | 260                        | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <5                                                  | <5                                                  | <5 [<5]                                               | <30 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| Tetrachloroethene                               | 5                          | 60                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| cis-1,3-Dichloropropene                         | --                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Vinyl chloride                                  | 2                          | 13                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| 2-Methylnaphthalene                             | 260                        | 19                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <5                                                  | <5                                                  | <5 [<5]                                               | <30 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| Chloroethane                                    | 430                        | 1,100                   | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <5                                                  | <5                                                  | <5 [<5]                                               | <30 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <5                                                  | <5                                                  | <5 [<5]                                               | <30 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| Benzene                                         | 5                          | 200                     | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | 284 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| Methyl acetate                                  | --                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Ethylbenzene                                    | 74                         | 18                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Methylene chloride                              | 5                          | 1,500                   | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <5                                                  | <5                                                  | <5 [<5]                                               | <30 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| Styrene                                         | 100                        | 80                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Toluene                                         | 790                        | 270                     | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| trans-1,3-Dichloropropene                       | --                         | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                   | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <5                                                  | <5                                                  | <5 [<5]                                               | <30 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Naphthalene                                     | 520                        | 11                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <5                                                  | <5                                                  | <5 [<5]                                               | <30 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| Trifluorotrichloroethane (Freon 113)            | 170,000                    | 32                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                   | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <25                                                 | <25                                                 | <25 [<25]                                             | <130 Y                                              | NA                                      | NA                                      | NA                                      | NA                                        |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <50                                                 | <50                                                 | <50 [<50]                                             | <250 Y                                              | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <5                                                  | <5                                                  | <5 [<5]                                               | <30 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                      | µg/L       | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units | MW-91-2<br>06/12/19<br>MW-91-2_061219 | MW-91-2R<br>12/06/19<br>MW-91-2R_120619 | MW-91-5<br>06/06/19<br>MW-91-5_060619 | MW-91-6<br>06/06/19<br>MW-91-6_060619 | MWBP-10-UST5-6<br>06/05/19<br>MWBP-10-UST5-6_060519 | MWBP-11-UST1-4<br>06/05/19<br>MWBP-11-UST1-4_060519 | MWBP-12A-UST1-4<br>06/05/19<br>MWBP-12A-UST1-4_060519 | MWBP-12-UST1-4<br>06/05/19<br>MWBP-12-UST1-4_060519 | P2-SB-20<br>06/04/19<br>P2-SB-20_060419 | P6-MW-01<br>05/02/19<br>P6-MW-01-050219 | P6-SB-07<br>06/06/19<br>P6-SB-07_060619 | P6-SB-07<br>08/27/19<br>P6-SB-07_20190827 |
|-------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------|---------------------------------------|-----------------------------------------|---------------------------------------|---------------------------------------|-----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-------------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                         |       |                                       |                                         |                                       |                                       |                                                     |                                                     |                                                       |                                                     |                                         |                                         |                                         |                                           |
| 1,2-Dichloropropane                                                                       | 5                          | 230                     | µg/L  | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                      | µg/L  | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| Cyclohexane                                                                               | --                         | --                      | µg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Methyl cyclohexane                                                                        | --                         | --                      | µg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Dibromochloromethane                                                                      | 80                         | --                      | µg/L  | NA                                    | NA                                      | NA                                    | NA                                    | <5                                                  | <5                                                  | <5 [<5]                                               | <30 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| Isopropyl benzene                                                                         | 800                        | 28                      | µg/L  | NA                                    | NA                                      | NA                                    | NA                                    | <5                                                  | <5                                                  | <5 [<5]                                               | <30 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| o-Xylene                                                                                  | --                         | --                      | µg/L  | NA                                    | NA                                      | NA                                    | NA                                    | <1                                                  | <1                                                  | <1 [<1]                                               | <5 Y                                                | NA                                      | NA                                      | NA                                      | NA                                        |
| m&p-Xylene                                                                                | --                         | --                      | µg/L  | NA                                    | NA                                      | NA                                    | NA                                    | <2                                                  | <2                                                  | <2 [<2]                                               | <10 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| Total Xylenes                                                                             | --                         | --                      | µg/L  | NA                                    | NA                                      | NA                                    | NA                                    | <2                                                  | <2                                                  | <2 [<2]                                               | <10 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| Hexachloroethane                                                                          | 7.3                        | 6.7                     | µg/L  | NA                                    | NA                                      | NA                                    | NA                                    | <5                                                  | <5                                                  | <5 [<5]                                               | <30 Y                                               | NA                                      | NA                                      | NA                                      | NA                                        |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                         |       |                                       |                                         |                                       |                                       |                                                     |                                                     |                                                       |                                                     |                                         |                                         |                                         |                                           |
| 1,4-Dioxane                                                                               | 7.2                        | 280                     | µg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                         |       |                                       |                                         |                                       |                                       |                                                     |                                                     |                                                       |                                                     |                                         |                                         |                                         |                                           |
| Antimony                                                                                  | 0.006                      | 0.13                    | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Arsenic                                                                                   | 0.01                       | 0.01                    | mg/L  | 0.003                                 | NA                                      | NA                                    | NA                                    | 0.012                                               | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Barium                                                                                    | 2                          | --                      | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Boron                                                                                     | 0.5                        | 7.2                     | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Cadmium                                                                                   | 0.005                      | --                      | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Chromium III                                                                              | 0.1                        | --                      | mg/L  | 0.025                                 | NA                                      | NA                                    | NA                                    | <0.005                                              | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                   | mg/L  | <0.01                                 | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Cobalt                                                                                    | 0.04                       | 0.1                     | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Copper                                                                                    | 1                          | --                      | mg/L  | 0.006                                 | NA                                      | NA                                    | NA                                    | <0.005                                              | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Lead                                                                                      | 0.004                      | --                      | mg/L  | <0.003                                | NA                                      | NA                                    | NA                                    | <0.003                                              | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Manganese                                                                                 | 0.05                       | --                      | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Mercury                                                                                   | 0.002                      | 0.0000013               | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Nickel                                                                                    | 0.1                        | 0.12                    | mg/L  | <0.005                                | NA                                      | NA                                    | NA                                    | <0.005                                              | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Selenium                                                                                  | 0.05                       | 0.005                   | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Silver                                                                                    | 0.034                      | 0.0002                  | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Vanadium                                                                                  | 0.0045                     | 0.027                   | mg/L  | 0.014                                 | NA                                      | NA                                    | NA                                    | <0.005                                              | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Zinc                                                                                      | 2.4                        | 0.26                    | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                         |       |                                       |                                         |                                       |                                       |                                                     |                                                     |                                                       |                                                     |                                         |                                         |                                         |                                           |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                    | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Chromium (dissolved)                                                                      | --                         | 0.16                    | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Copper (dissolved)                                                                        | 1                          | 0.02                    | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                   | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                    | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                   | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                         |       |                                       |                                         |                                       |                                       |                                                     |                                                     |                                                       |                                                     |                                         |                                         |                                         |                                           |
| Nitrate (as N)                                                                            | 10                         | --                      | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Phosphorus                                                                                | 63                         | --                      | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Sulfate                                                                                   | 250                        | --                      | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Total dissolved solids (TDS)                                                              | 500                        | --                      | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                      | mg/L  | NA                                    | NA                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | NA                                      | NA                                      | NA                                        |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                         |       |                                       |                                         |                                       |                                       |                                                     |                                                     |                                                       |                                                     |                                         |                                         |                                         |                                           |
| 4:2 FTS                                                                                   | --                         | --                      | ng/L  | <8                                    | <8                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <8                                      | <8                                      | <7.4                                      |
| 6:2 FTS                                                                                   | --                         | --                      | ng/L  | <8                                    | <8                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <8                                      | <8                                      | <7.4                                      |
| 8:2 FTS                                                                                   | --                         | --                      | ng/L  | <8                                    | <8                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <8                                      | <8                                      | <7.4                                      |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                      | ng/L  | <20                                   | <20                                     | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <20                                     | <20                                     | <19                                       |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                      | ng/L  | <20                                   | <20                                     | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <20                                     | <20                                     | <19                                       |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                      | ng/L  | 20.4                                  | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | 1.32 J                                  | 5.55                                    | 2.89 J                                    |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                      | ng/L  | 9.32                                  | 2.13 J                                  | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | 14.3                                    | 327                                     | 218                                       |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                      | ng/L  | <4                                    | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <4                                      | <4                                      | <3.7                                      |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                      | ng/L  | <4                                    | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <4                                      | 58.2                                    | 29.5                                      |
| Perfluorododecanoic acid (PFDoA)                                                          | --                         | --                      | ng/L  | <4                                    | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <4                                      | <4                                      | <3.7                                      |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                     | --                         | --                      | ng/L  | 8.7                                   | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <4                                      | 1.17 J                                  | <3.7                                      |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                      | ng/L  | 15.6                                  | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | 18.6                                    | 1,030                                   | 840                                       |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                      | ng/L  | 27.7                                  | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <4                                      | 4.41                                    | 4.18                                      |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                      | ng/L  | 9.3                                   | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | 25.2                                    | 1,220                                   | 819                                       |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                      | ng/L  | <4                                    | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <4                                      | <4                                      | <3.7                                      |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                      | ng/L  | 2.7 J                                 | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <4                                      | 163                                     | 102                                       |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                      | ng/L  | <4                                    | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <4                                      | 1.91 J                                  | <3.7                                      |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                      | ng/L  | 203                                   | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <4                                      | 103                                     | 66.2                                      |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                  | ng/L  | 39.2                                  | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | 25.1                                    | 1,360                                   | 1,070                                     |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                      | ng/L  | 19.6                                  | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <4                                      | 1.75 J                                  | 1.43 J                                    |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                      | ng/L  | 6.95                                  | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | 25                                      | 1,310                                   | 886                                       |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                      | ng/L  | <4                                    | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <4                                      | <4                                      | <3.7                                      |
| Perfluorotridecanoic Acid (PFTriA)                                                        | --                         | --                      | ng/L  | <4                                    | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <4                                      | <4                                      | <3.7                                      |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                      | ng/L  | <4                                    | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | <4                                      | <4                                      | <3.7                                      |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                      | ng/L  | 120.27 J                              | 2.13 J                                  | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | 84.42 J                                 | 4,122.99 J                              | 2,903.00 J                                |
| Combined PFOS and PFOA                                                                    | 70                         | --                      | ng/L  | 242.2                                 | <4                                      | NA                                    | NA                                    | NA                                                  | NA                                                  | NA                                                    | NA                                                  | NA                                      | 25.1                                    | 1,463                                   | 1,136.20                                  |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units      | P6-SB-07<br>12/05/19<br>P6-SB-07_120519 | PW-14-01<br>02/28/19<br>PW-14-01_022819 | PW-14-01<br>04/08/19<br>PW-14-01_040819 | PW-14-01<br>06/07/19<br>PW-14-01_060719 | PW-14-01<br>12/05/19<br>PW-14-01_120519 | PW-14-02<br>06/06/19<br>PW-14-02_060619 | PW-14-02<br>12/04/19<br>PW-14-02_120419 | PW-14-03<br>06/04/19<br>PW-14-03_060419 | PW-14-03<br>08/27/19<br>PW-14-03_082719 | PW-14-03<br>12/05/19<br>PW-14-03_120519 | TW-14-01<br>02/28/19<br>TW-14-01_022819 | TW-14-01<br>04/08/19<br>TW-14-01_040819 | TW-14-02<br>02/27/19<br>TW-14-02_022719 | TW-14-02<br>04/08/19<br>TW-14-02_040819 |
|-------------------------------------------------|----------------------------|-------------------------|------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Field                                           |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Conductivity                                    | --                         | --                      | mS/cm      | 772                                     | 2.07                                    | 2.421                                   | 2.21                                    | 2.47                                    | 2.89                                    | 2.57                                    | 3.36                                    | 3.09                                    | 2.73                                    | 2.4                                     | 2.697                                   | 2.71                                    | 3.259                                   |
| Dissolved oxygen (DO), field                    | --                         | --                      | mg/L       | 1.5                                     | 2.34                                    | 0.12                                    | 0.15                                    | 0.41                                    | 0.12                                    | 0.24                                    | 0.33                                    | 0.64                                    | 1.04                                    | 5.88                                    | 5.34                                    | 11.32                                   | 9.05                                    |
| Oxidation reduction potential (ORP), field      | --                         | --                      | millivolts | -54.3                                   | 100.4                                   | -9.8                                    | 54.9                                    | -317.9                                  | -37.7                                   | -148.7                                  | -59                                     | -23.1                                   | 120.8                                   | 83.1                                    | 53.6                                    | 61.6                                    | 121.6                                   |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0              | s.u.       | 7.39                                    | 7.23                                    | 7.24                                    | 7.08                                    | 6.77                                    | 6.99                                    | 7.09                                    | 6.28                                    | 6.28                                    | 6.44                                    | 7.19                                    | 7.16                                    | 7.66                                    | 7.19                                    |
| Temperature, field                              | --                         | --                      | Deg C      | 9.5                                     | 7.5                                     | 16.1                                    | 19.2                                    | 12.8                                    | 18.8                                    | 11.6                                    | 19.8                                    | 23.7                                    | 8.9                                     | 6.5                                     | 14.5                                    | 9.1                                     | 16.1                                    |
| Turbidity (field)                               | --                         | --                      | NTU        | 2.99                                    | 8.87                                    | 92                                      | 0.02                                    | 13.3                                    | 0.02                                    | 7.92                                    | 6.52                                    | 15.4                                    | 8.96                                    | 45.9                                    | 101                                     | 531                                     | 1722                                    |
| Volatile Organics (via EPA Method 537 Modified) |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trichlorobenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trichloropropane                          | 42                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,3-Trimethylbenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Acrylonitrile                                   | 2.6                        | 2                       | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <2                                      | <2                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Bromobenzene                                    | 18                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chlorobromomethane                              | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cymene (p-Isopropyltoluene)                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Dibromomethane                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Ethyl ether                                     | 10                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | <10                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Iodomethane                                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-Butylbenzene                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-Propylbenzene                                 | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| tert-Butylbenzene                               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Tetrahydrofuran                                 | 95                         | 11,000                  | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <90                                     | <90                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| trans-1,4-Dichloro-2-butene                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2-Dichlorobenzene                             | 600                        | 13                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,4-Dichlorobenzene                             | 75                         | 17                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,4-Dioxane                                     | 7.2                        | 280                     | µg/L       | NA                                      | 38                                      | 12                                      | 62                                      | 109                                     | 260 Y                                   | 260 Y                                   | 223 Y                                   | 250                                     | 43                                      | 9                                       | 7                                       | 120 Y                                   | 232 Y                                   |
| 1,1,1-Trichloroethane                           | 200                        | 89                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 2-Hexanone                                      | 1,000                      | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | NA                                      | <50                                     | <50                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,1,2,2-Tetrachloroethane                       | 8.5                        | 78                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Acetone                                         | 730                        | 1,700                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | NA                                      | <50                                     | <50                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,1,2-Trichloroethane                           | 5                          | 330                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Bromodichloromethane                            | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,1-Dichloroethane                              | 880                        | 740                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Bromoform                                       | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,1-Dichloroethene                              | 7                          | 130                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Bromomethane (Methyl bromide)                   | 10                         | 5                       | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2-Dichloroethane                              | 5                          | 360                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Carbon disulfide                                | 800                        | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Carbon tetrachloride                            | 5                          | 38                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| cis-1,2-Dichloroethene                          | 70                         | 620                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chlorobenzene                                   | 100                        | 25                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chloroform (Trichloromethane)                   | 80                         | 350                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Trichloroethene                                 | 5                          | 200                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chloromethane (Methyl chloride)                 | 260                        | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Tetrachloroethene                               | 5                          | 60                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| cis-1,3-Dichloropropene                         | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Vinyl chloride                                  | 2                          | 13                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 2-Methylnaphthalene                             | 260                        | 19                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chloroethane                                    | 430                        | 1,100                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Benzene                                         | 5                          | 200                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Methyl acetate                                  | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Ethylbenzene                                    | 74                         | 18                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Methylene chloride                              | 5                          | 1,500                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Styrene                                         | 100                        | 80                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Toluene                                         | 790                        | 270                     | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| trans-1,3-Dichloropropene                       | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Naphthalene                                     | 520                        | 11                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Trifluorotrichloroethane (Freon 113)            | 170,000                    | 32                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                   | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | NA                                      | <25                                     | <25                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | NA                                      | <50                                     | <50                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units | P6-SB-07<br>12/05/19<br>P6-SB-07_120519 | PW-14-01<br>02/28/19<br>PW-14-01_022819 | PW-14-01<br>04/08/19<br>PW-14-01_040819 | PW-14-01<br>06/07/19<br>PW-14-01_060719 | PW-14-01<br>12/05/19<br>PW-14-01_120519 | PW-14-02<br>06/06/19<br>PW-14-02_060619 | PW-14-02<br>12/04/19<br>PW-14-02_120419 | PW-14-03<br>06/04/19<br>PW-14-03_060419 | PW-14-03<br>08/27/19<br>PW-14-03_082719 | PW-14-03<br>12/05/19<br>PW-14-03_120519 | TW-14-01<br>02/28/19<br>TW-14-01_022819 | TW-14-01<br>04/08/19<br>TW-14-01_040819 | TW-14-02<br>02/27/19<br>TW-14-02_022719 | TW-14-02<br>04/08/19<br>TW-14-02_040819 |
|-------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,2-Dichloropropane                                                                       | 5                          | 230                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cyclohexane                                                                               | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Methyl cyclohexane                                                                        | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Dibromochloromethane                                                                      | 80                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Isopropyl benzene                                                                         | 800                        | 28                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| o-Xylene                                                                                  | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| m&p-Xylene                                                                                | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <2                                      | NA                                      | <2                                      | <2                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total Xylenes                                                                             | --                         | --                      | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <2                                      | NA                                      | <2                                      | <2                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Hexachloroethane                                                                          | 7.3                        | 6.7                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 1,4-Dioxane                                                                               | 7.2                        | 280                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Antimony                                                                                  | 0.006                      | 0.13                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Arsenic                                                                                   | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Barium                                                                                    | 2                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Boron                                                                                     | 0.5                        | 7.2                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cadmium                                                                                   | 0.005                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium III                                                                              | 0.1                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Cobalt                                                                                    | 0.04                       | 0.1                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Copper                                                                                    | 1                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Lead                                                                                      | 0.004                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Manganese                                                                                 | 0.05                       | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Mercury                                                                                   | 0.002                      | 0.0000013               | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Nickel                                                                                    | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Selenium                                                                                  | 0.05                       | 0.005                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Silver                                                                                    | 0.034                      | 0.0002                  | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Vanadium                                                                                  | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Zinc                                                                                      | 2.4                        | 0.26                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Chromium (dissolved)                                                                      | --                         | 0.16                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Copper (dissolved)                                                                        | 1                          | 0.02                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| Nitrate (as N)                                                                            | 10                         | --                      | mg/L  | NA                                      | <0.5                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <0.5                                    | <0.5                                    | NA                                      | 31.1                                    | NA                                      | 2.2                                     | NA                                      |
| Phosphorus                                                                                | 63                         | --                      | mg/L  | NA                                      | 0.03                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 0.08                                    | 0.14                                    | NA                                      | 6.4                                     | NA                                      | 10.2                                    | NA                                      |
| Sulfate                                                                                   | 250                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 1,710                                   | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total dissolved solids (TDS)                                                              | 500                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 3,070                                   | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                      | mg/L  | NA                                      | 0.2                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 1.3                                     | 1.2                                     | NA                                      | 4.9                                     | NA                                      | 7.6                                     | NA                                      |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |
| 4:2 FTS                                                                                   | --                         | --                      | ng/L  | <7.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 6:2 FTS                                                                                   | --                         | --                      | ng/L  | <7.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| 8:2 FTS                                                                                   | --                         | --                      | ng/L  | <7.7                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                      | ng/L  | <19                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                      | ng/L  | <19                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                      | ng/L  | 4.65                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                      | ng/L  | 193                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                      | ng/L  | <3.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                      | ng/L  | 23.4                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorododecanoic acid (PFDoA)                                                          | --                         | --                      | ng/L  | <3.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                     | --                         | --                      | ng/L  | <3.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                      | ng/L  | 575                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                      | ng/L  | 2.33 J                                  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                      | ng/L  | 676                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                      | ng/L  | <3.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                      | ng/L  | 74.6                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                      | ng/L  | <3.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                      | ng/L  | 47.4                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                  | ng/L  | 688                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                      | ng/L  | 1.39 J                                  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                      | ng/L  | 795                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                      | ng/L  | <3.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluorotridecanoic Acid (PFTriA)                                                        | --                         | --                      | ng/L  | <3.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                      | ng/L  | <3.8                                    | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                      | ng/L  | 2,345.37 J                              | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |
| Combined PFOS and PFOA                                                                    | 70                         | --                      | ng/L  | 735.4                                   | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      |

See notes on last page.



Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units      | TW-14-02<br>06/07/19<br>TW-14-02_060719 | TW-14-02<br>12/05/19<br>TW-14-02_120519 | TW-14-06<br>06/04/19<br>TW-14-06_060419 | TW-14-06<br>08/27/19<br>TW-14-06_082719 | TW-14-06<br>12/06/19<br>TW-14-06_120619 | TW-15-11<br>06/04/19<br>TW-15-11_060419 | TW-15-11<br>08/28/19<br>TW-15-11_082819 | TW-15-11<br>12/05/19<br>TW-15-11_120519 | TW-16-01<br>02/28/19<br>TW-16-01_022819 | TW-16-01<br>04/08/19<br>TW-16-01_040819 | TWP-90-03*<br>12/04/19<br>TWP-90-03_120419 | TWP-90-04*<br>12/04/19<br>TWP-90-04_120419 | TWP-90-05*<br>12/04/19<br>TWP-90-05_120419 | UNK-10<br>06/12/19<br>UNK-10_061219 |
|-------------------------------------------------|----------------------------|-------------------------|------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|--------------------------------------------|--------------------------------------------|--------------------------------------------|-------------------------------------|
| Field                                           |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         | TWP-90-03_120421                           |                                            |                                            |                                     |
| Conductivity                                    | --                         | --                      | mS/cm      | 5.38                                    | 5.22                                    | 2.95                                    | 3.29                                    | 3.65                                    | NA                                      | 3.27                                    | 3.24                                    | 2.16                                    | 2,263                                   | NA                                         | NA                                         | NA                                         | 0.2                                 |
| Dissolved oxygen (DO), field                    | --                         | --                      | mg/L       | 0.1                                     | 0.34                                    | 2.12                                    | 9.16                                    | 8.92                                    | NA                                      | 4.22                                    | 2.78                                    | 3.19                                    | 6.24                                    | NA                                         | NA                                         | NA                                         | 0.22                                |
| Oxidation reduction potential (ORP), field      | --                         | --                      | millivolts | 7.9                                     | -170.3                                  | -69.6                                   | 69.1                                    | 183.4                                   | NA                                      | 205.2                                   | 26.4                                    | 83.1                                    | 81.9                                    | NA                                         | NA                                         | NA                                         | -87.8                               |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0              | s.u.       | 6.68                                    | 6.57                                    | 6.67                                    | 6.88                                    | 6.8                                     | NA                                      | 6.43                                    | 6.56                                    | 7.13                                    | 7.17                                    | NA                                         | NA                                         | NA                                         | 7.35                                |
| Temperature, field                              | --                         | --                      | Deg C      | 18.4                                    | 12.8                                    | 19.3                                    | 18.3                                    | 9.3                                     | NA                                      | 19.6                                    | 9.7                                     | 8.9                                     | 15.3                                    | NA                                         | NA                                         | NA                                         | 15.9                                |
| Turbidity (field)                               | --                         | --                      | NTU        | 0.02                                    | 0.02                                    | 653                                     | 396                                     | 967                                     | NA                                      | 9.03                                    | 9.34                                    | 9.15                                    | 281                                     | NA                                         | NA                                         | NA                                         | 2.48                                |
| Volatile Organics (via EPA Method 537 Modified) |                            |                         |            |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                            |                                            |                                            |                                     |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| 1,2,3-Trichlorobenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| 1,2,3-Trichloropropane                          | 42                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| 1,2,3-Trimethylbenzene                          | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Acrylonitrile                                   | 2.6                        | 2                       | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <2                                      | <2                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Bromobenzene                                    | 18                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Chlorobromomethane                              | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Cymene (p-Isopropyltoluene)                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Dibromomethane                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Ethyl ether                                     | 10                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <10                                     | <10                                     | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Iodomethane                                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| N-Butylbenzene                                  | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| N-Propylbenzene                                 | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| tert-Butylbenzene                               | 80                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Tetrahydrofuran                                 | 95                         | 11,000                  | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <90                                     | <90                                     | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| trans-1,4-Dichloro-2-butene                     | --                         | --                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                     | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| 1,2-Dichlorobenzene                             | 600                        | 13                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| 1,4-Dichlorobenzene                             | 75                         | 17                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| 1,4-Dioxane                                     | 7.2                        | 280                     | µg/L       | 239 Y                                   | 490 Y                                   | 700 Y                                   | 430                                     | 59 [61]                                 | 246 Y                                   | 218                                     | 250 Y                                   | 202 Y                                   | 175 Y                                   | NA                                         | NA                                         | NA                                         | NA                                  |
| 1,1,1-Trichloroethane                           | 200                        | 89                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| 2-Hexanone                                      | 1,000                      | --                      | µg/L       | <10                                     | NA                                      | NA                                      | NA                                      | NA                                      | <50                                     | <50                                     | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <10                                 |
| 1,1,2,2-Tetrachloroethane                       | 8.5                        | 78                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Acetone                                         | 730                        | 1,700                   | µg/L       | <10                                     | NA                                      | NA                                      | NA                                      | NA                                      | <50                                     | <50                                     | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <10                                 |
| 1,1,2-Trichloroethane                           | 5                          | 330                     | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Bromodichloromethane                            | 90                         | --                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| 1,1-Dichloroethane                              | 880                        | 740                     | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Bromoform                                       | 80                         | --                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| 1,1-Dichloroethene                              | 7                          | 130                     | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Bromomethane (Methyl bromide)                   | 10                         | 5                       | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| 1,2-Dichloroethane                              | 5                          | 360                     | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Carbon disulfide                                | 800                        | --                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Carbon tetrachloride                            | 5                          | 38                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| cis-1,2-Dichloroethene                          | 70                         | 620                     | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Chlorobenzene                                   | 100                        | 25                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                   | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Chloroform (Trichloromethane)                   | 90                         | 350                     | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Trichloroethene                                 | 5                          | 200                     | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Chloromethane (Methyl chloride)                 | 260                        | --                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Tetrachloroethene                               | 5                          | 60                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| cis-1,3-Dichloropropene                         | --                         | --                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Vinyl chloride                                  | 2                          | 13                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| 2-Methylnaphthalene                             | 260                        | 19                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Chloroethane                                    | 430                        | 1,100                   | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Benzene                                         | 5                          | 200                     | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Methyl acetate                                  | --                         | --                      | µg/L       | <10                                     | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <10                                 |
| Ethylbenzene                                    | 74                         | 18                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Methylene chloride                              | 5                          | 1,500                   | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Styrene                                         | 100                        | 80                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Toluene                                         | 790                        | 270                     | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| trans-1,3-Dichloropropene                       | --                         | --                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                   | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Naphthalene                                     | 520                        | 11                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Trifluorotrichloroethane (Freon 113)            | 170,000                    | 32                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                   | µg/L       | <10                                     | NA                                      | NA                                      | NA                                      | NA                                      | <25                                     | <25                                     | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <10                                 |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                      | µg/L       | <10                                     | NA                                      | NA                                      | NA                                      | NA                                      | <50                                     | <50                                     | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <10                                 |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                      | µg/L       | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                      | µg/L       | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |

See notes on last page.



Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan



| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE 2018) | Units | TW-14-02<br>06/07/19<br>TW-14-02_060719 | TW-14-02<br>12/05/19<br>TW-14-02_120519 | TW-14-06<br>06/04/19<br>TW-14-06_060419 | TW-14-06<br>08/27/19<br>TW-14-06_082719 | TW-14-06<br>12/06/19<br>TW-14-06_120619 | TW-15-11<br>06/04/19<br>TW-15-11_060419 | TW-15-11<br>08/28/19<br>TW-15-11_082819 | TW-15-11<br>12/05/19<br>TW-15-11_120519 | TW-16-01<br>02/28/19<br>TW-16-01_022819 | TW-16-01<br>04/08/19<br>TW-16-01_040819 | TWP-90-03*<br>12/04/19<br>TWP-90-03_120419 | TWP-90-04*<br>12/04/19<br>TWP-90-04_120419 | TWP-90-05*<br>12/04/19<br>TWP-90-05_120419 | UNK-10<br>06/12/19<br>UNK-10_061219 |
|-------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|-----------------------------------------|--------------------------------------------|--------------------------------------------|--------------------------------------------|-------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                            |                                            |                                            |                                     |
| 1,2-Dichloropropane                                                                       | 5                          | 230                     | µg/L  | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                      | µg/L  | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Cyclohexane                                                                               | --                         | --                      | µg/L  | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Methyl cyclohexane                                                                        | --                         | --                      | µg/L  | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Dibromochloromethane                                                                      | 80                         | --                      | µg/L  | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| Isopropyl benzene                                                                         | 800                        | 28                      | µg/L  | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| o-Xylene                                                                                  | --                         | --                      | µg/L  | <1                                      | NA                                      | NA                                      | NA                                      | NA                                      | <1                                      | <1                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <1                                  |
| m&p-Xylene                                                                                | --                         | --                      | µg/L  | <2                                      | NA                                      | NA                                      | NA                                      | NA                                      | <2                                      | <2                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <2                                  |
| Total Xylenes                                                                             | --                         | --                      | µg/L  | <2                                      | NA                                      | NA                                      | NA                                      | NA                                      | <2                                      | <2                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | <2                                  |
| Hexachloroethane                                                                          | 7.3                        | 6.7                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | <5                                      | <5                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                            |                                            |                                            |                                     |
| 1,4-Dioxane                                                                               | 7.2                        | 280                     | µg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | 0.22* [0.23*]                              | 0.22*                                      | 0.42*                                      | NA                                  |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                            |                                            |                                            |                                     |
| Antimony                                                                                  | 0.006                      | 0.13                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Arsenic                                                                                   | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Barium                                                                                    | 2                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Boron                                                                                     | 0.5                        | 7.2                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Cadmium                                                                                   | 0.005                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Chromium III                                                                              | 0.1                        | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Cobalt                                                                                    | 0.04                       | 0.1                     | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Copper                                                                                    | 1                          | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Lead                                                                                      | 0.004                      | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Manganese                                                                                 | 0.05                       | --                      | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Mercury                                                                                   | 0.002                      | 0.0000013               | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Nickel                                                                                    | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Selenium                                                                                  | 0.05                       | 0.005                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Silver                                                                                    | 0.034                      | 0.0002                  | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Vanadium                                                                                  | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Zinc                                                                                      | 2.4                        | 0.26                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                            |                                            |                                            |                                     |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Chromium (dissolved)                                                                      | --                         | 0.16                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Copper (dissolved)                                                                        | 1                          | 0.02                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                    | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                   | mg/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                            |                                            |                                            |                                     |
| Nitrate (as N)                                                                            | 10                         | --                      | mg/L  | NA                                      | NA                                      | <0.5                                    | <0.5                                    | <0.5                                    | <0.5                                    | 0.5                                     | NA                                      | 2.9                                     | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Phosphorus                                                                                | 63                         | --                      | mg/L  | NA                                      | NA                                      | 1                                       | 14                                      | 1                                       | 0.07                                    | 0.07                                    | NA                                      | 1.16                                    | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Sulfate                                                                                   | 250                        | --                      | mg/L  | NA                                      | NA                                      | 1,490                                   | NA                                      | NA                                      | 1,920                                   | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Total dissolved solids (TDS)                                                              | 500                        | --                      | mg/L  | NA                                      | NA                                      | 2,690                                   | NA                                      | NA                                      | 3,160                                   | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                      | mg/L  | NA                                      | NA                                      | 2.4                                     | 9.1                                     | 1.5                                     | 0.9                                     | 0.4                                     | NA                                      | 6.3                                     | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                         |       |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                         |                                            |                                            |                                            |                                     |
| 4:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| 6:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| 8:2 FTS                                                                                   | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluorododecanoic acid (PFDoA)                                                          | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                     | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                  | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluorotridecanoic Acid (PFTriA)                                                        | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |
| Combined PFOS and PFOA                                                                    | 70                         | --                      | ng/L  | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                      | NA                                         | NA                                         | NA                                         | NA                                  |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

| Location ID:<br>Date Collected:<br>Sample Name: | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE<br>2018) | Units      | UNK-11<br>06/12/19<br>UNK-11_061219 | UNK-15<br>06/10/19<br>UNK-15_061019 | UNK-15<br>08/28/19<br>UNK-15_20190828 | UNK-15<br>12/06/19<br>UNK-15_120619 |
|-------------------------------------------------|----------------------------|----------------------------|------------|-------------------------------------|-------------------------------------|---------------------------------------|-------------------------------------|
| Field                                           |                            |                            |            |                                     |                                     |                                       |                                     |
| Conductivity                                    | --                         | --                         | mS/cm      | 0.334                               | 0.61                                | NA                                    | 0.75                                |
| Dissolved oxygen (DO), field                    | --                         | --                         | mg/L       | 2.82                                | 0.09                                | NA                                    | 2.28                                |
| Oxidation reduction potential (ORP), field      | --                         | --                         | millivolts | -74.6                               | 11.6                                | NA                                    | 177.3                               |
| pH                                              | 6.5 to 8.5                 | 6.5 to 9.0                 | s.u.       | 7.23                                | 7.68                                | NA                                    | 7.64                                |
| Temperature, field                              | --                         | --                         | Deg C      | 16                                  | 14.3                                | NA                                    | 12.1                                |
| Turbidity (field)                               | --                         | --                         | NTU        | 1.62                                | 2.89                                | NA                                    | 0.02                                |
| Volatile Organics (via EPA Method 537 Modified) |                            |                            |            |                                     |                                     |                                       |                                     |
| 1,1,1,2-Tetrachloroethane                       | 77                         | --                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| 1,2,3-Trichlorobenzene                          | --                         | --                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| 1,2,3-Trichloropropane                          | 42                         | --                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| 1,2,3-Trimethylbenzene                          | --                         | --                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| 2-Phenylbutane (sec-Butylbenzene)               | 80                         | --                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| Acrylonitrile                                   | 2.6                        | 2                          | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| Bromobenzene                                    | 18                         | --                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| Chlorobromomethane                              | --                         | --                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| Cymene (p-Isopropyltoluene)                     | --                         | --                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| Dibromomethane                                  | 80                         | --                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| Ethyl ether                                     | 10                         | --                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| Iodomethane                                     | --                         | --                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| N-Butylbenzene                                  | 80                         | --                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| N-Propylbenzene                                 | 80                         | --                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| tert-Butylbenzene                               | 80                         | --                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| Tetrahydrofuran                                 | 95                         | 11,000                     | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| trans-1,4-Dichloro-2-butene                     | --                         | --                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| 1,2-Dibromo-3-chloropropane (DBCP)              | 0.2                        | --                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| 1,2-Dibromoethane (Ethylene dibromide)          | 0.05                       | 5.7                        | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| 1,2-Dichlorobenzene                             | 600                        | 13                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| 1,4-Dichlorobenzene                             | 75                         | 17                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| 1,4-Dioxane                                     | 7.2                        | 280                        | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| 1,1,1-Trichloroethane                           | 200                        | 89                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| 2-Hexanone                                      | 1,000                      | --                         | µg/L       | <10                                 | NA                                  | NA                                    | NA                                  |
| 1,1,2,2-Tetrachloroethane                       | 8.5                        | 78                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Acetone                                         | 730                        | 1,700                      | µg/L       | <10                                 | NA                                  | NA                                    | NA                                  |
| 1,1,2-Trichloroethane                           | 5                          | 330                        | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Bromodichloromethane                            | 80                         | --                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| 1,1-Dichloroethane                              | 880                        | 740                        | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Bromoform                                       | 80                         | --                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| 1,1-Dichloroethene                              | 7                          | 130                        | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Bromomethane (Methyl bromide)                   | 10                         | 5                          | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| 1,2-Dichloroethane                              | 5                          | 360                        | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Carbon disulfide                                | 800                        | --                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Carbon tetrachloride                            | 5                          | 38                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| cis-1,2-Dichloroethene                          | 70                         | 620                        | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Chlorobenzene                                   | 100                        | 25                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| trans-1,2-Dichloroethene                        | 100                        | 1,500                      | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Chloroform (Trichloromethane)                   | 80                         | 350                        | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Trichloroethene                                 | 5                          | 200                        | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Chloromethane (Methyl chloride)                 | 260                        | --                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Tetrachloroethene                               | 5                          | 60                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| cis-1,3-Dichloropropene                         | --                         | --                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Vinyl chloride                                  | 2                          | 13                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| 2-Methylnaphthalene                             | 260                        | 19                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| Chloroethane                                    | 430                        | 1,100                      | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Dichlorodifluoromethane (CFC-12)                | 1,700                      | --                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Benzene                                         | 5                          | 200                        | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Methyl acetate                                  | --                         | --                         | µg/L       | <10                                 | NA                                  | NA                                    | NA                                  |
| Ethylbenzene                                    | 74                         | 18                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Methylene chloride                              | 5                          | 1,500                      | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Styrene                                         | 100                        | 80                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Toluene                                         | 790                        | 270                        | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| trans-1,3-Dichloropropene                       | --                         | --                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Methyl tert butyl ether (MTBE)                  | 40                         | 7,100                      | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Trichlorofluoromethane (CFC-11)                 | 2,600                      | --                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| Naphthalene                                     | 520                        | 11                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| Trifluorotrchloroethane (Freon 113)             | 170,000                    | 32                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| 2-Butanone (Methyl ethyl ketone) (MEK)          | 13,000                     | 2,200                      | µg/L       | <10                                 | NA                                  | NA                                    | NA                                  |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone)   | 1,800                      | --                         | µg/L       | <10                                 | NA                                  | NA                                    | NA                                  |
| 1,2,4-Trichlorobenzene                          | 70                         | 99                         | µg/L       | <1                                  | NA                                  | NA                                    | NA                                  |
| 1,2,4-Trimethylbenzene                          | 63                         | 17                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |
| 1,3,5-Trimethylbenzene                          | 72                         | 45                         | µg/L       | NA                                  | NA                                  | NA                                    | NA                                  |

See notes on last page.

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2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

| Location ID:<br>Date Collected:<br>Sample Name:                                           | P201 RES DW<br>(EGLE 2018) | P201 GSI<br>(EGLE<br>2018) | Units | UNK-11<br>06/12/19<br>UNK-11_061219 | UNK-15<br>06/10/19<br>UNK-15_061019 | UNK-15<br>08/28/19<br>UNK-15_20190828 | UNK-15<br>12/06/19<br>UNK-15_120619 |
|-------------------------------------------------------------------------------------------|----------------------------|----------------------------|-------|-------------------------------------|-------------------------------------|---------------------------------------|-------------------------------------|
| Volatile Organics (via EPA Method 537 Modified)                                           |                            |                            |       |                                     |                                     |                                       |                                     |
| 1,2-Dichloropropane                                                                       | 5                          | 230                        | µg/L  | <1                                  | NA                                  | NA                                    | NA                                  |
| 1,3-Dichlorobenzene                                                                       | 6.6                        | 28                         | µg/L  | <1                                  | NA                                  | NA                                    | NA                                  |
| Cyclohexane                                                                               | --                         | --                         | µg/L  | <2 X                                | NA                                  | NA                                    | NA                                  |
| Methyl cyclohexane                                                                        | --                         | --                         | µg/L  | <1                                  | NA                                  | NA                                    | NA                                  |
| Dibromochloromethane                                                                      | 80                         | --                         | µg/L  | <1                                  | NA                                  | NA                                    | NA                                  |
| Isopropyl benzene                                                                         | 800                        | 28                         | µg/L  | 2                                   | NA                                  | NA                                    | NA                                  |
| o-Xylene                                                                                  | --                         | --                         | µg/L  | <1                                  | NA                                  | NA                                    | NA                                  |
| m&p-Xylene                                                                                | --                         | --                         | µg/L  | <2                                  | NA                                  | NA                                    | NA                                  |
| Total Xylenes                                                                             | --                         | --                         | µg/L  | <2                                  | NA                                  | NA                                    | NA                                  |
| Hexachloroethane                                                                          | 7.3                        | 6.7                        | µg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Semivolatile Organics (via EPA Method SW 846 8260B - SIM Modified unless otherwise noted) |                            |                            |       |                                     |                                     |                                       |                                     |
| 1,4-Dioxane                                                                               | 7.2                        | 280                        | µg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Inorganics (via EPA Method 537 Modified)                                                  |                            |                            |       |                                     |                                     |                                       |                                     |
| Antimony                                                                                  | 0.006                      | 0.13                       | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Arsenic                                                                                   | 0.01                       | 0.01                       | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Barium                                                                                    | 2                          | --                         | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Boron                                                                                     | 0.5                        | 7.2                        | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Cadmium                                                                                   | 0.005                      | --                         | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Chromium III                                                                              | 0.1                        | --                         | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Chromium VI (hexavalent)                                                                  | 0.1                        | 0.011                      | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Cobalt                                                                                    | 0.04                       | 0.1                        | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Copper                                                                                    | 1                          | --                         | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Lead                                                                                      | 0.004                      | --                         | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Manganese                                                                                 | 0.05                       | --                         | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Mercury                                                                                   | 0.002                      | 0.0000013                  | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Nickel                                                                                    | 0.1                        | 0.12                       | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Selenium                                                                                  | 0.05                       | 0.005                      | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Silver                                                                                    | 0.034                      | 0.0002                     | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Vanadium                                                                                  | 0.0045                     | 0.027                      | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Zinc                                                                                      | 2.4                        | 0.26                       | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Inorganics-Filtered (via EPA Method 537 Modified)                                         |                            |                            |       |                                     |                                     |                                       |                                     |
| Arsenic (dissolved)                                                                       | 0.01                       | 0.01                       | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Chromium (dissolved)                                                                      | --                         | 0.16                       | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Copper (dissolved)                                                                        | 1                          | 0.02                       | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Lead (dissolved)                                                                          | 0.004                      | 0.044                      | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Nickel (dissolved)                                                                        | 0.1                        | 0.12                       | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Vanadium (dissolved)                                                                      | 0.0045                     | 0.027                      | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| General Chemistry (via EPA Method 537 Modified)                                           |                            |                            |       |                                     |                                     |                                       |                                     |
| Nitrate (as N)                                                                            | 10                         | --                         | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Phosphorus                                                                                | 63                         | --                         | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Sulfate                                                                                   | 250                        | --                         | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Total dissolved solids (TDS)                                                              | 500                        | --                         | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| Total kjeldahl nitrogen (TKN)                                                             | --                         | --                         | mg/L  | NA                                  | NA                                  | NA                                    | NA                                  |
| PFAS (via EPA Method 537 Modified)                                                        |                            |                            |       |                                     |                                     |                                       |                                     |
| 4:2 FTS                                                                                   | --                         | --                         | ng/L  | NA                                  | <8                                  | <7.4                                  | <8                                  |
| 6:2 FTS                                                                                   | --                         | --                         | ng/L  | NA                                  | <8                                  | <7.4                                  | <8                                  |
| 8:2 FTS                                                                                   | --                         | --                         | ng/L  | NA                                  | <8                                  | <7.4                                  | <8                                  |
| N-ethyl perfluorooctane sulfonamidoacetic acid                                            | --                         | --                         | ng/L  | NA                                  | <20                                 | <19                                   | <20                                 |
| N-methyl perfluorooctane sulfonamidoacetic acid                                           | --                         | --                         | ng/L  | NA                                  | <20                                 | <19                                   | <20                                 |
| Perfluorobutanesulfonic acid (PFBS)                                                       | --                         | --                         | ng/L  | NA                                  | 2.66 J                              | 2.19 J                                | 1.69 J                              |
| Perfluorobutanoic acid (PFBA)                                                             | --                         | --                         | ng/L  | NA                                  | 18.6                                | 15.2                                  | 20.8                                |
| Perfluorodecanesulfonic acid (PFDS)                                                       | --                         | --                         | ng/L  | NA                                  | <4                                  | <3.7                                  | <4                                  |
| Perfluorodecanoic acid (PFDA)                                                             | --                         | --                         | ng/L  | NA                                  | 2.03 J                              | 1.5 J                                 | 2.2 J                               |
| Perfluorododecanoic acid (PFDoA)                                                          | --                         | --                         | ng/L  | NA                                  | <4                                  | <3.7                                  | <4                                  |
| Perfluoroheptanesulfonic Acid (PFHpS)                                                     | --                         | --                         | ng/L  | NA                                  | 22.9                                | 28.2                                  | 24.3                                |
| Perfluoroheptanoic acid (PFHpA)                                                           | --                         | --                         | ng/L  | NA                                  | 15.8                                | 16.7                                  | 12.2                                |
| Perfluorohexanesulfonic acid (PFHxS)                                                      | --                         | --                         | ng/L  | NA                                  | 21.3                                | 22                                    | 21.7                                |
| Perfluorohexanoic acid (PFHxA)                                                            | --                         | --                         | ng/L  | NA                                  | 21                                  | 17.7                                  | 16                                  |
| Perfluorononanesulfonic acid (PFNS)                                                       | --                         | --                         | ng/L  | NA                                  | <4                                  | <3.7                                  | <4                                  |
| Perfluorononanoic acid (PFNA)                                                             | --                         | --                         | ng/L  | NA                                  | 6.94                                | 6.07                                  | 6.48                                |
| Perfluorooctane Sulfonamide (FOSA)                                                        | --                         | --                         | ng/L  | NA                                  | <4                                  | <3.7                                  | <40                                 |
| Perfluorooctane sulfonic acid (PFOS)                                                      | 70                         | 12                         | ng/L  | NA                                  | 1,410                               | 1,150                                 | 1,530                               |
| Perfluorooctanoic acid (PFOA)                                                             | 70                         | 12,000                     | ng/L  | NA                                  | 49.1                                | 44.2                                  | 41.4                                |
| Perfluoropentanesulfonic acid (PFPeS)                                                     | --                         | --                         | ng/L  | NA                                  | 2.53 J                              | 2.97 J                                | 2.38 J                              |
| Perfluoropentanoic acid (PFPeA)                                                           | --                         | --                         | ng/L  | NA                                  | 24.5                                | 23.1                                  | 18                                  |
| Perfluorotetradecanoic acid (PFTeA)                                                       | --                         | --                         | ng/L  | NA                                  | <4                                  | <3.7                                  | <4                                  |
| Perfluorotridecanoic Acid (PFTriA)                                                        | --                         | --                         | ng/L  | NA                                  | <4                                  | <3.7                                  | <4                                  |
| Perfluoroundecanoic acid (PFUnA)                                                          | --                         | --                         | ng/L  | NA                                  | <4                                  | <3.7                                  | <4                                  |
| Total PFAS (excluding PFOS and PFOA)                                                      | --                         | --                         | ng/L  | NA                                  | 138.26 J                            | 135.63 J                              | 125.75 J                            |
| Combined PFOS and PFOA                                                                    | 70                         | --                         | ng/L  | NA                                  | 1,459.10                            | 1,194.20                              | 1,571.40                            |

See notes on last page.

Table 2  
Summary of Groundwater Analytical Results  
2019 Annual Groundwater Report  
RACER Trust Plants 2, 3, and 6 - Lansing, Michigan

**Table Notes:**  
**Bold font** represents data where detections were noted above the laboratory method detection limit.  
**Gray shading** represents result exceeding either or both the EGLE Part 201 Generic Cleanup Criteria and Screening Levels (dated January 10, 2018) or the EGLE GSI Criteria (Updated June 25, 2018)

1,4-Dioxane is compared to a drinking water criteria of 7.2 µg/L per the *MDEQ Establishment of Cleanup Criteria for 1,4 -Dioxane: Emergency Rules* dated October 27, 2016.

Data shown in [ ] represent duplicate sample analytical results.  
- - = Not listed in the MDEQ Criteria Tables.  
\* = Analyzed for 1,4-Dioxane via EPA Method 522 (TWP-90-03, TWP-90-04, TWP-90-05, MW-19-125)  
Deg. C. = degrees celcius  
EGLE = Michigan Department of Environment, Great Lakes, and Energy  
mg/L = milligrams per liter  
NA = Not Analyzed  
NTU = Nephelometric Turbidity Unit  
s.u. = standard unit  
ug/L = micrograms per liter  
µS/cm = microSiemens per centimeter

**Lab and Validation Data Qualifiers:**  
J = The compound was positively identified, however, the associated numerical value is an estimated concentration only.  
U = The compound was analyzed for but not detected. The associated value is the compound quantitation limit.  
X = Elevated reporting limit due to matrix interference.  
Y = Elevated reporting limit due to high target concentration.

**Table 3**  
**LNAPL Thickness, January to December 2019**  
**2019 Annual Groundwater Monitoring Report**  
**RACER Trust Plants 2, 3, and 6**  
**Lansing, Michigan**

| Well ID        | Date Collected | Reference Elevation (TOC) | Ground Surface Elevation (feet msl) | Total Well Depth (feet below TOC) | Depth to Water (feet below TOC) | Depth to LNAPL (feet below TOC) | Calculated Thickness NAPL (feet) | Groundwater Elevation (feet msl) |
|----------------|----------------|---------------------------|-------------------------------------|-----------------------------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|
| <b>Plant 2</b> |                |                           |                                     |                                   |                                 |                                 |                                  |                                  |
| LMW-12-01      | 2019-12-02     | 864.91                    | 862.14                              | 14.75                             | 8.57                            | NP                              | NP                               | 853.57                           |
| LMW-12-02      | 2019-12-02     | 865.25                    | 862.17                              | 12.9                              | 6.58                            | NP                              | NP                               | 855.59                           |
| LMW-12-03D     | 2019-02-05     | 864.99                    | 862.08                              | NM                                | 14.6                            | 11.68                           | 2.92                             | 847.48                           |
|                | 2019-03-01     | 864.99                    | 862.08                              | NM                                | 14.02                           | 11.95                           | 2.07                             | 848.06                           |
|                | 2019-04-15     | 864.99                    | 862.08                              | NM                                | 13.94                           | 12.17                           | 1.77                             | 848.14                           |
|                | 2019-06-07     | 864.99                    | 862.08                              | NM                                | 13.75                           | 10.2                            | 3.55                             | 848.33                           |
|                | 2019-07-09     | 864.99                    | 862.08                              | NM                                | 11.79                           | 10.68                           | 1.11                             | 850.29                           |
|                | 2019-08-07     | 864.99                    | 862.08                              | NM                                | 12.95                           | 11.7                            | 1.25                             | 849.13                           |
|                | 2019-12-02     | 864.99                    | 862.08                              | NM                                | 13.71                           | 10.36                           | 3.35                             | 848.37                           |
| LMW-12-03S     | 2019-12-02     | 864.93                    | 862.06                              | 11.75                             | 6.13                            | NP                              | NP                               | 855.93                           |
| LMW-12-04      | 2019-12-02     | 864.94                    | 862.12                              | 22.89                             | 10.38                           | NP                              | NP                               | 851.74                           |
| LMW-12-05      | 2019-12-02     | 865.03                    | 862.17                              | NM                                | 10.87                           | 10.83                           | 0.04                             | 851.30                           |
| LMW-12-06      | 2019-12-02     | 865.02                    | 862.15                              | 11.97                             | 7.22                            | NP                              | NP                               | 854.93                           |
| LMW-12-07      | 2019-12-02     | 864.13                    | 861.50                              | 11.95                             | 5.08                            | NP                              | NP                               | 856.42                           |
| LMW-12-08      | 2019-02-05     | 864.40                    | 861.56                              | NM                                | 11.05                           | 8.65                            | 2.4                              | 850.51                           |
|                | 2019-03-01     | 864.40                    | 861.56                              | NM                                | 10.43                           | 9.05                            | 1.38                             | 851.13                           |
|                | 2019-04-15     | 864.40                    | 861.56                              | NM                                | 10.79                           | 9.43                            | 1.36                             | 850.77                           |
|                | 2019-06-07     | 864.40                    | 861.56                              | NM                                | 8.99                            | 8.05                            | 0.94                             | 852.57                           |
|                | 2019-07-09     | 864.59                    | 861.56                              | NM                                | 8.9                             | 8.44                            | 0.46                             | 852.66                           |
|                | 2019-08-07     | 864.59                    | 861.56                              | NM                                | 9.5                             | 9.2                             | 0.3                              | 852.06                           |
|                | 2019-12-02     | 864.59                    | 861.56                              | NM                                | 8.76                            | 8.2                             | 0.56                             | 852.80                           |
| LMW-14-12D     | 2019-02-05     | 864.59                    | 862.11                              | NM                                | 24.98                           | 10.48                           | 14.5                             | 837.13                           |
|                | 2019-03-01     | 864.59                    | 862.11                              | NM                                | 23.01                           | 9.87                            | 13.14                            | 839.10                           |
|                | 2019-04-15     | 864.59                    | 862.11                              | NM                                | 22.11                           | 10.04                           | 12.07                            | 840.00                           |
|                | 2019-06-07     | 864.59                    | 862.11                              | NM                                | 25                              | 8.6                             | 16.4                             | 837.11                           |
|                | 2019-07-09     | 864.59                    | 862.11                              | NM                                | 24.5                            | 8.52                            | 15.98                            | 837.61                           |
|                | 2019-08-07     | 864.59                    | 862.11                              | NM                                | 25                              | 9.45                            | 15.55                            | 837.11                           |
|                | 2019-12-02     | 864.59                    | 862.11                              | NM                                | 24.92                           | 8.74                            | 16.18                            | 837.19                           |
| LMW-14-13D     | 2019-02-05     | 865.03                    | 862.06                              | 24.3                              | 11.42                           | NP                              | NP                               | 850.64                           |
|                | 2019-03-01     | 865.03                    | 862.06                              | NM                                | 11.85                           | NP                              | NP                               | 850.21                           |
|                | 2019-04-15     | 865.03                    | 862.06                              | NM                                | 11.08                           | NP                              | NP                               | 850.98                           |
|                | 2019-06-07     | 865.03                    | 862.06                              | NM                                | 10.03                           | NP                              | NP                               | 852.03                           |
|                | 2019-07-09     | 865.03                    | 862.06                              | NM                                | 10.03                           | NP                              | NP                               | 852.03                           |
|                | 2019-08-07     | 865.03                    | 862.06                              | NM                                | 11.09                           | NP                              | NP                               | 850.97                           |
|                | 2019-12-02     | 865.03                    | 862.06                              | 24.33                             | 10.06                           | NP                              | NP                               | 852.00                           |
| LMW-14-14D     | 2019-02-05     | 864.89                    | 861.90                              | 24.95                             | 13.52                           | NP                              | NP                               | 848.38                           |
|                | 2019-03-01     | 864.89                    | 861.90                              | NM                                | 13.92                           | NP                              | NP                               | 847.98                           |
|                | 2019-04-15     | 864.89                    | 861.90                              | NM                                | 12.72                           | NP                              | NP                               | 849.18                           |
|                | 2019-06-07     | 864.89                    | 861.90                              | NM                                | 12.14                           | NP                              | NP                               | 849.76                           |
|                | 2019-07-09     | 864.89                    | 861.90                              | NM                                | 12.01                           | NP                              | NP                               | 849.89                           |
|                | 2019-08-07     | 864.89                    | 861.90                              | NM                                | 13.18                           | NP                              | NP                               | 848.72                           |
|                | 2019-12-02     | 864.89                    | 861.90                              | 24.98                             | 11.82                           | NP                              | NP                               | 850.08                           |
| LMW-14-15D     | 2019-02-05     | 865.11                    | 861.66                              | 22.65                             | 22.64                           | 11.25                           | 11.39                            | 839.02                           |
|                | 2019-03-01     | 865.11                    | 861.66                              | NM                                | 19.32                           | 12.71                           | 6.61                             | 842.34                           |
|                | 2019-04-15     | 865.11                    | 861.66                              | NM                                | 21.2                            | 13.01                           | 8.19                             | 840.46                           |
|                | 2019-06-07     | 865.11                    | 861.66                              | 22.55                             | 22.55                           | 9.45                            | 13.1                             | 839.11                           |
|                | 2019-07-09     | 865.11                    | 861.66                              | 22.6                              | 22.6                            | 9.48                            | 13.12                            | 839.06                           |
|                | 2019-08-07     | 865.11                    | 861.66                              | 22.6                              | 22.6                            | 10.98                           | 11.62                            | 839.06                           |
|                | 2019-12-02     | 865.11                    | 861.66                              | 22.63                             | 22.63                           | 9.42                            | 13.21                            | 839.03                           |
| LMW-15-16D     | 2019-02-04     | 865.20                    | 862.24                              | NM                                | 23.08                           | 14.05                           | 9.03                             | 839.16                           |
|                | 2019-03-01     | 865.20                    | 862.24                              | NM                                | 22.91                           | 15.12                           | 7.79                             | 839.33                           |
|                | 2019-04-15     | 865.20                    | 862.24                              | NM                                | 22.35                           | 15.45                           | 6.9                              | 839.89                           |
|                | 2019-06-07     | 865.20                    | 862.24                              | NM                                | 25.1                            | 11.95                           | 13.15                            | 837.14                           |
|                | 2019-07-09     | 865.20                    | 862.24                              | NM                                | 22.49                           | 11.25                           | 11.24                            | 839.75                           |
|                | 2019-08-07     | 865.20                    | 862.24                              | NM                                | 16.15                           | 13.52                           | 2.63                             | 846.09                           |
|                | 2019-12-02     | 865.20                    | 862.24                              | NM                                | 22.99                           | 11.8                            | 11.19                            | 839.25                           |

**Table 3**  
**LNAPL Thickness, January to December 2019**  
**2019 Annual Groundwater Monitoring Report**  
**RACER Trust Plants 2, 3, and 6**  
**Lansing, Michigan**

| Well ID        | Date Collected | Reference Elevation (TOC) | Ground Surface Elevation (feet msl) | Total Well Depth (feet below TOC) | Depth to Water (feet below TOC) | Depth to LNAPL (feet below TOC) | Calculated Thickness NAPL (feet) | Groundwater Elevation (feet msl) |
|----------------|----------------|---------------------------|-------------------------------------|-----------------------------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|
| <b>Plant 2</b> |                |                           |                                     |                                   |                                 |                                 |                                  |                                  |
| LMW-15-17D     | 2019-12-02     | 865.21                    | 862.24                              | 27.29                             | 10.68                           | NP                              | NP                               | 851.56                           |
| P2-SB-37       | 2019-02-04     | 865.90                    | 861.90                              | NM                                | 8.92                            | 7.08                            | 1.84                             | 852.98                           |
|                | 2019-03-01     | 865.90                    | 861.90                              | NM                                | 9.02                            | 7.54                            | 1.48                             | 852.88                           |
|                | 2019-04-15     | 865.90                    | 861.90                              | NM                                | 9.13                            | 7.71                            | 1.42                             | 852.77                           |
|                | 2019-06-07     | 865.90                    | 861.90                              | NM                                | 6.8                             | 6.24                            | 0.56                             | 855.10                           |
|                | 2019-07-09     | 860.85                    | 861.90                              | NM                                | 6.65                            | 6.5                             | 0.15                             | 855.25                           |
|                | 2019-08-07     | 860.85                    | 861.90                              | NM                                | 7.85                            | 7.7                             | 0.15                             | 854.05                           |
|                | 2019-12-02     | 860.85                    | 861.90                              | NM                                | 7.35                            | 6.53                            | 0.82                             | 854.55                           |
| PMW-01         | 2019-02-04     | 860.85                    | 861.33                              | NM                                | 5.7                             | 2.39                            | 3.31                             | 855.63                           |
|                | 2019-03-01     | 860.85                    | 861.33                              | NM                                | 5.41                            | 2.65                            | 2.76                             | 855.92                           |
|                | 2019-04-15     | 860.85                    | 861.33                              | NM                                | 5.02                            | 2.79                            | 2.23                             | 856.31                           |
|                | 2019-06-07     | 860.85                    | 861.33                              | NM                                | 3.35                            | 1.49                            | 1.86                             | 857.98                           |
|                | 2019-07-09     | 860.85                    | 861.33                              | NM                                | 2.9                             | 1.75                            | 1.15                             | 858.43                           |
|                | 2019-08-07     | 860.85                    | 861.33                              | NM                                | 4.6                             | 3.22                            | 1.38                             | 856.73                           |
|                | 2019-12-02     | 860.85                    | 861.33                              | NM                                | 2.72                            | 1.32                            | 1.4                              | 858.61                           |
| PMW-02         | 2019-02-04     | 860.94                    | 861.33                              | NM                                | 1.12                            | 1.11                            | 0.01                             | 860.21                           |
|                | 2019-03-01     | 860.94                    | 861.33                              | NM                                | 2.12                            | NP                              | NP                               | 859.21                           |
|                | 2019-04-15     | 860.94                    | 861.33                              | NM                                | 2.49                            | 2.45                            | 0.04                             | 858.84                           |
|                | 2019-06-07     | 860.94                    | 861.33                              | NM                                | 0.83                            | 0.82                            | 0.01                             | 860.50                           |
|                | 2019-07-09     | 860.94                    | 861.33                              | NM                                | 0.92                            | 0.91                            | 0.01                             | 860.41                           |
|                | 2019-08-07     | 860.94                    | 861.33                              | NM                                | 1.99                            | 1.98                            | 0.01                             | 859.34                           |
|                | 2019-12-02     | 860.94                    | 861.33                              | 7.43                              | 0.11                            | NP                              | NP                               | 861.22                           |
| PMW-03         | 2019-12-02     | 861.59                    | 862.12                              | 6.1                               | 1.1                             | NP                              | NP                               | 861.02                           |
| <b>Plant 3</b> |                |                           |                                     |                                   |                                 |                                 |                                  |                                  |
| LMW-12-09      | 2019-06-03     | 863.22                    | 860.40                              | 10.77                             | 3.8                             | NP                              | NP                               | 856.60                           |
|                | 2019-12-02     | 863.22                    | 860.40                              | NM                                | 3.75                            | 3.71                            | 0.04                             | 856.65                           |
| LMW-12-10      | 2019-06-03     | 866.82                    | 863.60                              | NM                                | 12.16                           | 10.37                           | 1.79                             | 851.44                           |
|                | 2019-12-02     | 866.82                    | 863.60                              | NM                                | 13.59                           | 10.48                           | 3.11                             | 850.01                           |
| LMW-12-11      | 2019-06-03     | 866.53                    | 863.53                              | 22.86                             | 11.22                           | NP                              | NP                               | 852.31                           |
|                | 2019-12-02     | 866.53                    | 863.53                              | 22.85                             | 12.28                           | NP                              | NP                               | 851.25                           |
| UNK-14         | 2019-06-03     | 859.32                    | 859.70                              | NM                                | 3.52                            | 1.68                            | 1.84                             | 856.18                           |
|                | 2019-12-02     | 859.32                    | 859.70                              | NM                                | 3.12                            | 1.23                            | 1.89                             | 856.58                           |

**Notes:**

LNAPL = light nonaqueous phase liquid

msl = mean sea level

NAPL = nonaqueous phase liquid

NM = not measured

NP = no product

TOC = top of casing

RACER = Revitalizing Auto Communities Environmental Response

\*Groundwater elevations have been corrected for the presence of LNAPL using a measured LNAPL density of 0.8995 gram per milliliter.



Table 4  
LNAPL Recovery, January through December 2019  
2019 Annual Groundwater Monitoring Report  
RACER Trust Plants 2, 3, and 6  
Lansing, Michigan

| Well ID    | Recovery Date** | Reference Elevation (TOC) | Ground Surface Elevation (feet msl) | Total Well Depth (feet below TOC) | Depth to Water (feet below TOC) | Depth to LNAPL (feet below TOC) | Starting LNAPL Thickness (feet) | Groundwater Elevation (feet msl) | Estimated LNAPL Volume Recovered (gallons) | Cumulative LNAPL Volume Recovered (gallons) | Water Recovered (Gallons) *** | Liquid Recovered (Gallons) *** | 2019 Cumulative Liquid Recovery (Gallons) |
|------------|-----------------|---------------------------|-------------------------------------|-----------------------------------|---------------------------------|---------------------------------|---------------------------------|----------------------------------|--------------------------------------------|---------------------------------------------|-------------------------------|--------------------------------|-------------------------------------------|
| LMW-12-03D | 4/15/2019       | 864.99                    | 862.08                              | NM                                | 13.94                           | 12.17                           | 1.77                            | 848.14                           | 0.25                                       | 0.25                                        | 0.05                          | 0.3                            | 0.30                                      |
|            | 6/7/2019        | 864.99                    | 862.08                              | NM                                | 13.75                           | 10.2                            | 3.55                            | 848.33                           | 0.4                                        | 0.65                                        | 0.05                          | 0.45                           | 0.75                                      |
|            | 7/9/2019        | 864.99                    | 862.08                              | NM                                | 11.79                           | 10.68                           | 1.11                            | 850.29                           | 0.18                                       | 0.83                                        | 0.02                          | 0.2                            | 0.95                                      |
|            | 8/7/2019        | 864.99                    | 862.08                              | NM                                | 12.95                           | 11.7                            | 1.25                            | 849.13                           | 0.2                                        | 1.03                                        | 0.02                          | 0.22                           | 1.17                                      |
|            | 12/2/2019       | 864.99                    | 862.08                              | NM                                | 13.71                           | 10.36                           | 3.35                            | 848.37                           | 0                                          | 1.03                                        | 0                             | 0                              | 1.17                                      |
| LMW-12-08  | 4/15/2019       | 864.40                    | 861.56                              | NM                                | 10.79                           | 9.43                            | 1.36                            | 850.77                           | 0.2                                        | 1.23                                        | 0.05                          | 0.25                           | 1.42                                      |
|            | 6/7/2019        | 864.40                    | 861.56                              | NM                                | 8.99                            | 8.05                            | 0.94                            | 852.57                           | 0.15                                       | 1.38                                        | 0.05                          | 0.2                            | 1.62                                      |
|            | 7/9/2019        | 864.59                    | 861.56                              | NM                                | 8.9                             | 8.44                            | 0.46                            | 852.66                           | 0.07                                       | 1.45                                        | 0.01                          | 0.08                           | 1.70                                      |
|            | 8/7/2019        | 864.59                    | 861.56                              | NM                                | 9.5                             | 9.2                             | 0.3                             | 852.06                           | 0.05                                       | 1.50                                        | 0.01                          | 0.06                           | 1.76                                      |
|            | 12/2/2019       | 864.59                    | 861.56                              | NM                                | 8.76                            | 8.2                             | 0.56                            | 852.80                           | 0                                          | 1.50                                        | 0                             | 0                              | 1.76                                      |
| LMW-14-12D | 4/15/2019       | 864.59                    | 862.11                              | NM                                | 22.11                           | 10.04                           | 12.07                           | 840.00                           | 1.5                                        | 3.00                                        | 0.1                           | 1.6                            | 3.36                                      |
|            | 6/7/2019        | 864.59                    | 862.11                              | NM                                | 25                              | 8.6                             | 16.4                            | 837.11                           | 2.5                                        | 5.50                                        | 0.2                           | 2.7                            | 6.06                                      |
|            | 7/9/2019        | 864.59                    | 862.11                              | NM                                | 24.5                            | 8.52                            | 15.98                           | 837.61                           | 2.6                                        | 8.10                                        | 0.3                           | 2.9                            | 8.96                                      |
|            | 8/7/2019        | 864.59                    | 862.11                              | NM                                | 25                              | 9.45                            | 15.55                           | 837.11                           | 2.5                                        | 10.60                                       | 0.25                          | 2.75                           | 11.71                                     |
|            | 12/2/2019       | 864.59                    | 862.11                              | NM                                | 24.92                           | 8.74                            | 16.18                           | 837.19                           | 0                                          | 10.60                                       | 0                             | 0                              | 11.71                                     |
| LMW-14-15D | 4/15/2019       | 865.11                    | 861.66                              | NM                                | 21.2                            | 13.01                           | 8.19                            | 840.46                           | 1.2                                        | 11.80                                       | 0.1                           | 1.3                            | 13.01                                     |
|            | 6/7/2019        | 865.11                    | 861.66                              | 22.55                             | 22.55                           | 9.45                            | 13.1                            | 839.11                           | 2.1                                        | 13.90                                       | 0.2                           | 2.3                            | 15.31                                     |
|            | 7/9/2019        | 865.11                    | 861.66                              | 22.6                              | 22.6                            | 9.48                            | 13.12                           | 839.06                           | 2.1                                        | 16.00                                       | 0.2                           | 2.3                            | 17.61                                     |
|            | 8/7/2019        | 865.11                    | 861.66                              | 22.6                              | 22.6                            | 10.98                           | 11.62                           | 839.06                           | 1.75                                       | 17.75                                       | 0.25                          | 2                              | 19.61                                     |
|            | 12/2/2019       | 865.11                    | 861.66                              | 22.63                             | 22.63                           | 9.42                            | 13.21                           | 839.03                           | 0                                          | 17.75                                       | 0                             | 0                              | 19.61                                     |
| LMW-15-16D | 4/15/2019       | 865.20                    | 862.24                              | NM                                | 22.35                           | 15.45                           | 6.9                             | 839.89                           | 1                                          | 18.75                                       | 0.1                           | 1.1                            | 20.71                                     |
|            | 6/7/2019        | 865.20                    | 862.24                              | NM                                | 25.1                            | 11.95                           | 13.15                           | 837.14                           | 2.1                                        | 20.85                                       | 0.2                           | 2.3                            | 23.01                                     |
|            | 7/9/2019        | 865.20                    | 862.24                              | NM                                | 22.49                           | 11.25                           | 11.24                           | 839.75                           | 1.8                                        | 22.65                                       | 0.1                           | 1.9                            | 24.91                                     |
|            | 8/7/2019        | 865.20                    | 862.24                              | NM                                | 16.15                           | 13.52                           | 2.63                            | 846.09                           | 0.4                                        | 23.05                                       | 0.05                          | 0.45                           | 25.36                                     |
|            | 12/2/2019       | 865.20                    | 862.24                              | NM                                | 22.99                           | 11.8                            | 11.19                           | 839.25                           | 0                                          | 23.05                                       | 0                             | 0                              | 25.36                                     |
| P2-SB-37   | 4/15/2019       | 865.90                    | 861.90                              | NM                                | 9.13                            | 7.71                            | 1.42                            | 852.77                           | 0.2                                        | 23.25                                       | 0.1                           | 0.3                            | 25.66                                     |
|            | 6/7/2019        | 865.90                    | 861.90                              | NM                                | 6.8                             | 6.24                            | 0.56                            | 855.10                           | 0.09                                       | 23.34                                       | 0.05                          | 0.14                           | 25.80                                     |
|            | 7/9/2019        | 860.85                    | 861.90                              | NM                                | 6.65                            | 6.5                             | 0.15                            | 855.25                           | 0.02                                       | 23.36                                       | 0                             | 0.02                           | 25.82                                     |
|            | 8/7/2019        | 860.85                    | 861.90                              | NM                                | 7.85                            | 7.7                             | 0.15                            | 854.05                           | 0.02                                       | 23.38                                       | 0                             | 0.02                           | 25.84                                     |
|            | 12/2/2019       | 860.85                    | 861.90                              | NM                                | 7.35                            | 6.53                            | 0.82                            | 854.55                           | 0                                          | 23.38                                       | 0                             | 0                              | 25.84                                     |
| PMW-01     | 4/15/2019       | 860.85                    | 861.33                              | NM                                | 5.02                            | 2.79                            | 2.23                            | 856.31                           | 0.3                                        | 23.68                                       | 0.05                          | 0.35                           | 26.19                                     |
|            | 6/7/2019        | 860.85                    | 861.33                              | NM                                | 3.35                            | 1.49                            | 1.86                            | 857.98                           | 0.3                                        | 23.98                                       | 0.1                           | 0.4                            | 26.59                                     |
|            | 7/9/2019        | 860.85                    | 861.33                              | NM                                | 2.9                             | 1.75                            | 1.15                            | 858.43                           | 0.18                                       | 24.16                                       | 0.05                          | 0.23                           | 26.82                                     |
|            | 8/7/2019        | 860.85                    | 861.33                              | NM                                | 4.6                             | 3.22                            | 1.38                            | 856.73                           | 0.22                                       | 24.38                                       | 0.05                          | 0.27                           | 27.09                                     |
|            | 12/2/2019       | 860.85                    | 861.33                              | NM                                | 2.72                            | 1.32                            | 1.4                             | 858.61                           | 0                                          | 24.38                                       | 0                             | 0                              | 27.09                                     |
| PMW-02     | 4/15/2019       | 860.94                    | 861.33                              | NM                                | 2.49                            | 2.45                            | 0.04                            | 858.84                           | 0.005                                      | 24.39                                       | 0                             | 0.005                          | 27.10                                     |
|            | 6/7/2019        | 860.94                    | 861.33                              | NM                                | 0.83                            | 0.82                            | 0.01                            | 860.50                           | 0                                          | 24.39                                       | 0                             | 0                              | 27.10                                     |
|            | 7/9/2019        | 860.94                    | 861.33                              | NM                                | 0.92                            | 0.91                            | 0.01                            | 860.41                           | 0                                          | 24.39                                       | 0                             | 0                              | 27.10                                     |
|            | 8/7/2019        | 860.94                    | 861.33                              | NM                                | 1.99                            | 1.98                            | 0.01                            | 859.34                           | 0                                          | 24.39                                       | 0                             | 0                              | 27.10                                     |
|            | 12/2/2019       | 860.94                    | 861.33                              | 7.43                              | 0.11                            | 0                               | 0.11                            | 861.22                           | 0                                          | 24.39                                       | 0                             | 0                              | 27.10                                     |

| Per Well Totals (January - December 2019) |                                  |                                  | 2019 Recovery Event Totals |                                  |                                  | Cumulative Totals (June 2015 - December 2019) |                                  |                                  |
|-------------------------------------------|----------------------------------|----------------------------------|----------------------------|----------------------------------|----------------------------------|-----------------------------------------------|----------------------------------|----------------------------------|
| Well ID                                   | LNAPL Volume Recovered (gallons) | Total Liquid Recovered (gallons) | Recovery Event             | LNAPL Volume Recovered (gallons) | Total Liquid Recovered (gallons) | Well ID                                       | LNAPL Volume Recovered (gallons) | Total Liquid Recovered (gallons) |
| LMW-12-03D                                | 1.03                             | 1.17                             | 4/15/2019                  | 4.66                             | 5.21                             | LMW-12-03D                                    | 15.31                            | 19.49                            |
| LMW-12-08                                 | 0.47                             | 0.59                             | 6/7/2019                   | 7.64                             | 8.49                             | LMW-12-08                                     | 0.47                             | 1.52                             |
| LMW-14-12D                                | 9.10                             | 9.95                             | 7/9/2019                   | 6.95                             | 7.63                             | LMW-12-10                                     | 4.05                             | 4.05                             |
| LMW-14-15D                                | 7.15                             | 7.90                             | 8/7/2019                   | 5.14                             | 5.77                             | LMW-14-12D                                    | 79.70                            | 84.39                            |
| LMW-15-16D                                | 5.30                             | 5.75                             | 12/2/2019                  | 0.00                             | 0.00                             | LMW-14-15D                                    | 54.49                            | 58.90                            |
| P2-SB-37                                  | 0.33                             | 0.48                             | <b>Total:</b>              | <b>24.39</b>                     | <b>27.10</b>                     | LMW-15-16D                                    | 31.46                            | 33.65                            |
| PMW-01                                    | 1.00                             | 1.25                             |                            |                                  |                                  | P2-SB-37                                      | 0.33                             | 0.81                             |
| PMW-02                                    | 0.01                             | 0.01                             |                            |                                  |                                  | PMW-01                                        | 1.00                             | 3.00                             |
|                                           |                                  |                                  |                            |                                  |                                  | PMW-02                                        | 0.01                             | 0.02                             |
|                                           |                                  |                                  |                            |                                  |                                  | <b>Total:</b>                                 | <b>186.82</b>                    | <b>205.83</b>                    |

LNAPL = light nonaqueous phase liquid  
msl = mean sea level  
NA = not applicable  
NM = not measured  
PVC = polyvinyl chloride  
RACER = Revitalizing Auto Communities Environmental Response  
TOC = top of casing  
\* Groundwater elevations have been corrected for the presence of LNAPL using a measured LNAPL density of 0.8995 gram per milliliter.  
\*\* Depth-to-water and depth-to-LNAPL measurements were collected at beginning of the associated quarterly groundwater sampling event or LNAPL gauging event.  
\*\*\* Recovery performed via 1.5-inch-diameter weighted PVC bailers. Volume includes groundwater and LNAPL recovered.



**Table 5**  
**Groundwater Elevations, January to December 2019**  
**2019 Annual Groundwater Monitoring Report**  
**RACER Trust Plants 2, 3, and 6**  
**Lansing, Michigan**

| Well ID        | Date Collected | Screened Interval Top (feet bgs) | Screened Interval Bottom (feet bgs) | Reference Elevation (TOC) | Ground Surface Elevation (feet msl) | Total Well Depth (feet below TOC) | Depth to Water (feet below TOC) | Groundwater Elevation (feet msl) |
|----------------|----------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|-----------------------------------|---------------------------------|----------------------------------|
| <b>Plant 2</b> |                |                                  |                                     |                           |                                     |                                   |                                 |                                  |
| AS-16-01       | 2019-02-27     | 72                               | 77                                  | 862.74                    | 862.13                              | 75.20                             | 51.30                           | 811.44                           |
| AS-16-02       | 2019-02-28     | 73                               | 78                                  | 861.96                    | 862.17                              | 76.10                             | 61.20                           | 800.76                           |
| LMW-12-01      | 2019-12-02     | 7                                | 12                                  | 864.91                    | 862.14                              | 14.75                             | 8.57                            | 856.34                           |
| LMW-12-02      | 2019-12-02     | 5                                | 10                                  | 865.25                    | 862.17                              | 12.90                             | 6.58                            | 858.67                           |
| LMW-12-03D     | 2019-02-05     | 17.3                             | 22.3                                | 864.99                    | 862.08                              | NM                                | 11.97                           | 853.02                           |
| LMW-12-03D     | 2019-03-01     | 17.3                             | 22.3                                | 864.99                    | 862.08                              | NM                                | 12.16                           | 852.83                           |
| LMW-12-03D     | 2019-04-15     | 17.3                             | 22.3                                | 864.99                    | 862.08                              | NM                                | 12.35                           | 852.64                           |
| LMW-12-03D     | 2019-06-07     | 17.3                             | 22.3                                | 864.99                    | 862.08                              | NM                                | 10.56                           | 854.43                           |
| LMW-12-03D     | 2019-07-09     | 17.3                             | 22.3                                | 864.99                    | 862.08                              | NM                                | 10.79                           | 854.20                           |
| LMW-12-03D     | 2019-08-07     | 17.3                             | 22.3                                | 864.99                    | 862.08                              | NM                                | 11.83                           | 853.16                           |
| LMW-12-03D     | 2019-12-02     | 17.3                             | 22.3                                | 864.99                    | 862.08                              | NM                                | 10.70                           | 854.29                           |
| LMW-12-03S     | 2019-12-02     | 4                                | 9                                   | 864.93                    | 862.06                              | 11.75                             | 6.13                            | 858.80                           |
| LMW-12-04      | 2019-12-02     | 16                               | 21                                  | 864.94                    | 862.12                              | 22.89                             | 10.38                           | 854.56                           |
| LMW-12-05      | 2019-12-02     | 7                                | 12                                  | 865.03                    | 862.17                              | NM                                | 10.83                           | 854.20                           |
| LMW-12-06      | 2019-12-02     | 4                                | 9                                   | 865.02                    | 862.15                              | 11.97                             | 7.22                            | 857.80                           |
| LMW-12-07      | 2019-12-02     | 4                                | 9                                   | 864.13                    | 861.50                              | 11.95                             | 5.08                            | 859.05                           |
| LMW-12-08      | 2019-02-05     | 8                                | 13                                  | 864.40                    | 861.56                              | NM                                | 8.89                            | 855.51                           |
| LMW-12-08      | 2019-03-01     | 8                                | 13                                  | 864.40                    | 861.56                              | NM                                | 9.19                            | 855.21                           |
| LMW-12-08      | 2019-04-15     | 8                                | 13                                  | 864.40                    | 861.56                              | NM                                | 9.57                            | 854.83                           |
| LMW-12-08      | 2019-06-07     | 8                                | 13                                  | 864.40                    | 861.56                              | NM                                | 8.14                            | 856.26                           |
| LMW-12-08      | 2019-07-09     | 8                                | 13                                  | 864.40                    | 861.56                              | NM                                | 8.14                            | 856.26                           |
| LMW-12-08      | 2019-08-07     | 8                                | 13                                  | 864.40                    | 861.56                              | NM                                | 8.14                            | 856.26                           |
| LMW-12-08      | 2019-12-02     | 8                                | 13                                  | 864.40                    | 861.56                              | NM                                | 8.14                            | 856.26                           |
| LMW-14-12D     | 2019-02-05     | 18                               | 23                                  | 864.59                    | 862.11                              | NM                                | 11.94                           | 852.65                           |
| LMW-14-12D     | 2019-03-01     | 18                               | 23                                  | 864.59                    | 862.11                              | NM                                | 11.19                           | 853.40                           |
| LMW-14-12D     | 2019-04-15     | 18                               | 23                                  | 864.59                    | 862.11                              | NM                                | 11.25                           | 853.34                           |
| LMW-14-12D     | 2019-06-07     | 18                               | 23                                  | 864.59                    | 862.11                              | NM                                | 10.25                           | 854.34                           |
| LMW-14-12D     | 2019-07-09     | 18                               | 23                                  | 864.59                    | 862.11                              | NM                                | 10.13                           | 854.46                           |
| LMW-14-12D     | 2019-08-07     | 18                               | 23                                  | 864.59                    | 862.11                              | NM                                | 11.01                           | 853.58                           |
| LMW-14-12D     | 2019-12-02     | 18                               | 23                                  | 864.59                    | 862.11                              | NM                                | 10.37                           | 854.22                           |
| LMW-14-13D     | 2019-02-05     | 17.5                             | 22.5                                | 865.03                    | 862.06                              | 24.30                             | 11.42                           | 853.61                           |
| LMW-14-13D     | 2019-03-01     | 17.5                             | 22.5                                | 865.03                    | 862.06                              | NM                                | 11.85                           | 853.18                           |
| LMW-14-13D     | 2019-04-15     | 17.5                             | 22.5                                | 865.03                    | 862.06                              | NM                                | 11.08                           | 853.95                           |
| LMW-14-13D     | 2019-06-07     | 17.5                             | 22.5                                | 865.03                    | 862.06                              | NM                                | 10.03                           | 855.00                           |
| LMW-14-13D     | 2019-07-09     | 17.5                             | 22.5                                | 865.03                    | 862.06                              | NM                                | 10.03                           | 855.00                           |
| LMW-14-13D     | 2019-08-07     | 17.5                             | 22.5                                | 865.03                    | 862.06                              | NM                                | 11.09                           | 853.94                           |
| LMW-14-13D     | 2019-12-02     | 17.5                             | 22.5                                | 865.03                    | 862.06                              | NM                                | 10.06                           | 854.97                           |
| LMW-14-14D     | 2019-02-05     | 18                               | 23                                  | 864.89                    | 861.90                              | 24.95                             | 13.52                           | 851.37                           |
| LMW-14-14D     | 2019-03-01     | 18                               | 23                                  | 864.89                    | 861.90                              | NM                                | 13.92                           | 850.97                           |
| LMW-14-14D     | 2019-04-15     | 18                               | 23                                  | 864.89                    | 861.90                              | NM                                | 12.72                           | 852.17                           |
| LMW-14-14D     | 2019-06-07     | 18                               | 23                                  | 864.89                    | 861.90                              | NM                                | 12.14                           | 852.75                           |
| LMW-14-14D     | 2019-07-09     | 18                               | 23                                  | 864.89                    | 861.90                              | NM                                | 11.82                           | 853.07                           |
| LMW-14-14D     | 2019-08-07     | 18                               | 23                                  | 864.89                    | 861.90                              | NM                                | 13.18                           | 851.71                           |
| LMW-14-14D     | 2019-12-02     | 18                               | 23                                  | 864.89                    | 861.90                              | NM                                | 12.01                           | 852.88                           |
| LMW-14-15D     | 2019-02-05     | 18                               | 23                                  | 865.11                    | 861.66                              | 22.65                             | 12.39                           | 852.72                           |
| LMW-14-15D     | 2019-03-01     | 18                               | 23                                  | 865.11                    | 861.66                              | NM                                | NM                              | NM                               |
| LMW-14-15D     | 2019-04-15     | 18                               | 23                                  | 865.11                    | 861.66                              | NM                                | 13.83                           | 851.28                           |
| LMW-14-15D     | 2019-06-07     | 18                               | 23                                  | 865.11                    | 861.66                              | 22.55                             | 10.77                           | 854.34                           |
| LMW-14-15D     | 2019-07-09     | 18                               | 23                                  | 865.11                    | 861.66                              | 22.60                             | 22.60                           | 842.51                           |
| LMW-14-15D     | 2019-08-07     | 18                               | 23                                  | 865.11                    | 861.66                              | 22.60                             | 22.60                           | 842.51                           |
| LMW-14-15D     | 2019-12-02     | 18                               | 23                                  | 865.11                    | 861.66                              | 22.63                             | 22.63                           | 842.48                           |
| LMW-15-16D     | 2019-02-04     | 19.5                             | 24.5                                | 865.20                    | 862.24                              | NM                                | 14.96                           | 850.24                           |
| LMW-15-16D     | 2019-03-01     | 19.5                             | 24.5                                | 865.20                    | 862.24                              | NM                                | 15.90                           | 849.30                           |

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**Table 5**  
**Groundwater Elevations, January to December 2019**  
**2019 Annual Groundwater Monitoring Report**  
**RACER Trust Plants 2, 3, and 6**  
**Lansing, Michigan**

| Well ID        | Date Collected | Screened Interval Top (feet bgs) | Screened Interval Bottom (feet bgs) | Reference Elevation (TOC) | Ground Surface Elevation (feet msl) | Total Well Depth (feet below TOC) | Depth to Water (feet below TOC) | Groundwater Elevation (feet msl) |
|----------------|----------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|-----------------------------------|---------------------------------|----------------------------------|
| <b>Plant 2</b> |                |                                  |                                     |                           |                                     |                                   |                                 |                                  |
| LMW-15-16D     | 2019-04-15     | 19.5                             | 24.5                                | 865.20                    | 862.24                              | NM                                | 16.14                           | 849.06                           |
| LMW-15-16D     | 2019-06-07     | 19.5                             | 24.5                                | 865.20                    | 862.24                              | NM                                | 13.27                           | 851.93                           |
| LMW-15-16D     | 2019-07-09     | 19.5                             | 24.5                                | 865.20                    | 862.24                              | NM                                | 12.38                           | 852.82                           |
| LMW-15-16D     | 2019-08-07     | 19.5                             | 24.5                                | 865.20                    | 862.24                              | NM                                | 13.78                           | 851.42                           |
| LMW-15-16D     | 2019-12-02     | 19.5                             | 24.5                                | 865.20                    | 862.24                              | NM                                | 12.92                           | 852.28                           |
| LMW-15-17D     | 2019-12-02     | 20                               | 25                                  | 865.21                    | 862.24                              | NM                                | 10.68                           | 854.53                           |
| MW-01(2)       | 2019-06-03     | 10                               | 20                                  | 875.79                    | 876.10                              | 16.00                             | 6.73                            | 869.06                           |
| MW-12-01       | 2019-06-25     | 87                               | 110                                 | 867.94                    | 865.46                              | NM                                | 72.72                           | 795.22                           |
| MW-12-02       | 2019-06-25     | 87                               | 110                                 | 853.91                    | 851.88                              | NM                                | 64.13                           | 789.78                           |
| MW-12-05R      | 2019-06-25     | 100                              | 112                                 | 864.79                    | 862.30                              | NM                                | 72.15                           | 792.64                           |
| MW-12-06       | 2019-06-25     | 80.6                             | 99.5                                | 864.64                    | 861.69                              | NM                                | 69.62                           | 795.02                           |
| MW-12-09       | 2019-06-03     | 14                               | 19                                  | 863.54                    | 860.63                              | 21.60                             | 13.64                           | 849.90                           |
| MW-12-09       | 2019-12-02     | 14                               | 19                                  | 863.54                    | 860.63                              | 21.57                             | 13.75                           | 849.79                           |
| MW-12-18       | 2019-06-03     | 28                               | 33                                  | 866.43                    | 864.19                              | 34.85                             | 23.72                           | 842.71                           |
| MW-12-18       | 2019-12-02     | 28                               | 33                                  | 866.43                    | 864.19                              | 34.75                             | 23.72                           | 842.71                           |
| MW-13-43       | 2019-06-03     | 72                               | 77                                  | 863.82                    | 860.97                              | 81.20                             | 67.82                           | 796.00                           |
| MW-13-43       | 2019-06-25     | 72                               | 77                                  | 863.82                    | 860.97                              | NM                                | 65.60                           | 798.22                           |
| MW-13-43       | 2019-12-02     | 72                               | 77                                  | 863.82                    | 860.97                              | 79.73                             | 64.34                           | 799.48                           |
| MW-13-44       | 2019-06-03     | 96                               | 115                                 | 864.24                    | 861.03                              | 122.10                            | 74.25                           | 789.99                           |
| MW-13-44       | 2019-06-25     | 96                               | 115                                 | 864.24                    | 861.03                              | NM                                | 73.82                           | 790.42                           |
| MW-13-45       | 2019-06-03     | 72                               | 77                                  | 863.80                    | 861.54                              | 78.41                             | 65.65                           | 798.15                           |
| MW-13-45       | 2019-12-02     | 72                               | 77                                  | 863.80                    | 861.54                              | 78.30                             | 64.82                           | 798.98                           |
| MW-14-54       | 2019-06-03     | 14                               | 19                                  | 865.21                    | 862.21                              | 19.00                             | 13.47                           | 851.74                           |
| MW-14-55       | 2019-06-03     | 13                               | 18                                  | 864.17                    | 861.73                              | 20.05                             | 17.38                           | 846.79                           |
| MW-14-56       | 2019-06-13     | 71                               | 76                                  | 863.27                    | 860.56                              | 79.00                             | 66.27                           | 797.00                           |
| MW-14-56       | 2019-12-02     | 71                               | 76                                  | 863.27                    | 860.56                              | 78.95                             | 64.62                           | 798.65                           |
| MW-14-57       | 2019-06-03     | 15                               | 20                                  | 863.97                    | 861.10                              | 21.40                             | 13.22                           | 850.75                           |
| MW-14-58       | 2019-06-03     | 22                               | 27                                  | 863.12                    | 860.12                              | 30.50                             | 13.92                           | 849.20                           |
| MW-14-58       | 2019-12-02     | 22                               | 27                                  | 863.12                    | 860.12                              | 29.89                             | 13.94                           | 849.18                           |
| MW-14-59       | 2019-06-03     | 12                               | 17                                  | 864.61                    | 861.80                              | 18.88                             | 7.11                            | 857.50                           |
| MW-14-59       | 2019-12-02     | 12                               | 17                                  | 864.61                    | 861.80                              | 18.80                             | 6.98                            | 857.63                           |
| MW-14-60       | 2019-06-03     | 15                               | 20                                  | 864.65                    | 861.80                              | 23.60                             | 12.25                           | 852.40                           |
| MW-14-60       | 2019-12-02     | 15                               | 20                                  | 864.65                    | 861.80                              | 23.60                             | 11.77                           | 852.88                           |
| MW-14-61       | 2019-06-03     | 70                               | 75                                  | 865.51                    | 862.30                              | 77.50                             | 66.31                           | 799.20                           |
| MW-14-61       | 2019-06-25     | 70                               | 75                                  | 865.51                    | 862.30                              | NM                                | 66.00                           | 799.51                           |
| MW-14-61       | 2019-12-02     | 70                               | 75                                  | 865.51                    | 862.30                              | 77.40                             | 65.22                           | 800.29                           |
| MW-14-62       | 2019-06-03     | 12                               | 17                                  | 865.17                    | 862.25                              | 19.60                             | 5.38                            | 859.79                           |
| MW-14-62       | 2019-12-02     | 12                               | 17                                  | 865.17                    | 862.25                              | 19.60                             | 5.45                            | 859.72                           |
| MW-14-63       | 2019-06-03     | 68                               | 73                                  | 854.64                    | 851.68                              | 77.12                             | 63.82                           | 790.82                           |
| MW-14-63       | 2019-06-25     | 68                               | 73                                  | 854.64                    | 851.68                              | NM                                | 63.50                           | 791.14                           |
| MW-15-72       | 2019-02-27     | 63                               | 68                                  | 865.09                    | 862.35                              | 70.35                             | 57.82                           | 807.27                           |
| MW-15-72       | 2019-06-03     | 63                               | 68                                  | 865.09                    | 862.35                              | 71.00                             | 58.72                           | 806.37                           |
| MW-15-72       | 2019-06-25     | 63                               | 68                                  | 865.09                    | 862.35                              | 70.74                             | 58.15                           | 806.94                           |
| MW-15-72       | 2019-12-02     | 63                               | 68                                  | 865.09                    | 862.35                              | 70.31                             | 57.89                           | 807.20                           |
| MW-15-73       | 2019-06-03     | 78                               | 83                                  | 861.56                    | 859.12                              | 81.42                             | 68.21                           | 793.35                           |
| MW-16-74       | 2019-06-03     | 66                               | 71                                  | 864.81                    | 862.10                              | 73.70                             | 65.23                           | 799.58                           |
| MW-16-74       | 2019-12-02     | 66                               | 71                                  | 864.81                    | 862.10                              | 73.69                             | 63.65                           | 801.16                           |
| MW-16-75       | 2019-02-27     | 66                               | 71                                  | 864.87                    | 862.13                              | 74.05                             | 59.79                           | 805.08                           |
| MW-16-75       | 2019-06-03     | 66                               | 71                                  | 864.87                    | 862.13                              | 74.18                             | 61.75                           | 803.12                           |
| MW-16-75       | 2019-12-02     | 66                               | 71                                  | 864.87                    | 862.13                              | 74.10                             | 60.36                           | 804.51                           |
| MW-16-76       | 2019-06-03     | 70                               | 75                                  | 867.76                    | 865.12                              | 82.15                             | 64.15                           | 803.61                           |
| MW-16-77       | 2019-02-27     | 66                               | 71                                  | 866.17                    | 863.42                              | 73.95                             | 59.46                           | 806.71                           |
| MW-16-77       | 2019-06-03     | 66                               | 71                                  | 866.17                    | 863.42                              | 74.00                             | 60.65                           | 805.52                           |

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**2019 Annual Groundwater Monitoring Report**  
**RACER Trust Plants 2, 3, and 6**  
**Lansing, Michigan**

| Well ID        | Date Collected | Screened Interval Top (feet bgs) | Screened Interval Bottom (feet bgs) | Reference Elevation (TOC) | Ground Surface Elevation (feet msl) | Total Well Depth (feet below TOC) | Depth to Water (feet below TOC) | Groundwater Elevation (feet msl) |
|----------------|----------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|-----------------------------------|---------------------------------|----------------------------------|
| <b>Plant 2</b> |                |                                  |                                     |                           |                                     |                                   |                                 |                                  |
| MW-16-77       | 2019-12-02     | 66                               | 71                                  | 866.17                    | 863.42                              | 73.98                             | 59.55                           | 806.62                           |
| MW-16-78       | 2019-06-03     | 68                               | 73                                  | 864.98                    | 862.09                              | 76.70                             | 63.21                           | 801.77                           |
| MW-16-78       | 2019-12-02     | 68                               | 73                                  | 864.98                    | 862.09                              | 76.19                             | 62.40                           | 802.58                           |
| MW-16-79       | 2019-06-03     | 68                               | 73                                  | 864.80                    | 862.07                              | 75.70                             | 64.99                           | 799.81                           |
| MW-16-79       | 2019-12-02     | 68                               | 73                                  | 864.80                    | 862.07                              | 75.70                             | 63.92                           | 800.88                           |
| MW-16-80       | 2019-06-03     | 68                               | 73                                  | 853.03                    | 853.41                              | 74.20                             | 60.75                           | 792.28                           |
| MW-16-80       | 2019-12-02     | 68                               | 73                                  | 853.03                    | 853.41                              | 73.38                             | 57.93                           | 795.10                           |
| MW-16-81       | 2019-02-26     | 70                               | 75                                  | 864.68                    | 862.04                              | 77.38                             | 64.74                           | 799.94                           |
| MW-16-81       | 2019-06-03     | 70                               | 75                                  | 864.68                    | 862.04                              | 77.30                             | 64.96                           | 799.72                           |
| MW-16-81       | 2019-12-02     | 70                               | 75                                  | 864.68                    | 862.04                              | 77.22                             | 63.72                           | 800.96                           |
| MW-16-82       | 2019-02-26     | 70                               | 75                                  | 864.79                    | 862.10                              | 77.30                             | 64.74                           | 800.05                           |
| MW-16-82       | 2019-12-02     | 70                               | 75                                  | 864.79                    | 862.10                              | 77.14                             | 64.86                           | 799.93                           |
| MW-16-83       | 2019-06-03     | 71                               | 76                                  | 862.97                    | 860.17                              | 80.00                             | 68.75                           | 794.22                           |
| MW-16-83       | 2019-12-02     | 71                               | 76                                  | 862.97                    | 860.17                              | 79.03                             | 66.16                           | 796.81                           |
| MW-16-84       | 2019-02-26     | 72                               | 77                                  | 864.09                    | 861.81                              | 81.15                             | 65.88                           | 798.21                           |
| MW-16-84       | 2019-06-03     | 72                               | 77                                  | 864.09                    | 861.81                              | 82.44                             | 68.00                           | 796.09                           |
| MW-16-84       | 2019-12-02     | 72                               | 77                                  | 864.09                    | 861.81                              | 81.15                             | 66.09                           | 798.00                           |
| MW-16-85       | 2019-06-03     | 74                               | 79                                  | 864.77                    | 861.87                              | 83.41                             | 69.61                           | 795.16                           |
| MW-16-85       | 2019-12-02     | 74                               | 79                                  | 864.77                    | 861.87                              | 81.84                             | 67.01                           | 797.76                           |
| MW-17-86       | 2019-06-03     | 73                               | 78                                  | 864.55                    | 861.92                              | 81.45                             | 65.33                           | 799.22                           |
| MW-17-86       | 2019-12-02     | 73                               | 78                                  | 864.55                    | 861.92                              | 81.43                             | 64.24                           | 800.31                           |
| MW-17-87       | 2019-06-03     | 100                              | 112                                 | 862.82                    | 860.44                              | 119.34                            | 69.93                           | 792.89                           |
| MW-17-87       | 2019-06-25     | 100                              | 112                                 | 862.82                    | 860.44                              | NM                                | 69.58                           | 793.24                           |
| MW-19-120      | 2019-12-02     | 66                               | 71                                  | 864.67                    | 862.13                              | 74.08                             | 64.41                           | 800.26                           |
| MW-19-121      | 2019-12-02     | 66                               | 71                                  | 864.52                    | 862.19                              | 73.72                             | 63.57                           | 800.95                           |
| MW-19-122      | 2019-12-02     | 59                               | 64                                  | 865.02                    | 862.15                              | 73.72                             | 63.31                           | 801.71                           |
| MW-19-123      | 2019-12-02     | 66                               | 71                                  | 864.45                    | 862.04                              | 73.96                             | 61.07                           | 803.38                           |
| MW-19-124      | 2019-12-02     | 65                               | 70                                  | 864.53                    | 862.22                              | 72.31                             | 64.10                           | 800.43                           |
| MW-19-125      | 2019-12-02     | 100                              | 115                                 | 865.19                    | 862.16                              | 109.95                            | 70.57                           | 794.62                           |
| PMW-01         | 2019-02-04     | 2.59                             | 7.59                                | 860.85                    | 861.33                              | NM                                | 5.70                            | 855.15                           |
| PMW-01         | 2019-03-01     | 2.59                             | 7.59                                | 860.85                    | 861.33                              | NM                                | 2.93                            | 857.92                           |
| PMW-01         | 2019-04-15     | 2.59                             | 7.59                                | 860.85                    | 861.33                              | 34.10                             | 5.02                            | 855.83                           |
| PMW-01         | 2019-06-07     | 2.59                             | 7.59                                | 860.85                    | 861.33                              | NM                                | 2.85                            | 858.00                           |
| PMW-01         | 2019-07-09     | 2.59                             | 7.59                                | 860.85                    | 861.33                              | NM                                | 2.90                            | 857.95                           |
| PMW-01         | 2019-08-07     | 2.59                             | 7.59                                | 860.85                    | 861.33                              | NM                                | 4.60                            | 856.25                           |
| PMW-01         | 2019-12-02     | 2.59                             | 7.59                                | 860.85                    | 861.33                              | NM                                | 2.72                            | 858.13                           |
| PW-14-01       | 2019-02-28     | 71.6                             | 76.8                                | 864.97                    | 862.38                              | 81.85                             | 61.80                           | 803.17                           |
| PW-14-01       | 2019-06-03     | 71.6                             | 76.8                                | 864.97                    | 862.38                              | 81.90                             | 63.49                           | 801.48                           |
| PW-14-01       | 2019-12-02     | 71.6                             | 76.8                                | 864.97                    | 862.38                              | 81.84                             | 61.87                           | 803.10                           |
| PW-14-02       | 2019-06-03     | 75                               | 80                                  | 863.87                    | 860.93                              | 93.83                             | 65.70                           | 798.17                           |
| PW-14-02       | 2019-12-02     | 75                               | 80                                  | 863.87                    | 860.93                              | 85.18                             | 64.05                           | 799.82                           |
| TW-14-01       | 2019-02-28     | 70                               | 75                                  | 865.08                    | 862.27                              | 78.00                             | 65.65                           | 799.43                           |
| TW-14-02       | 2019-02-27     | 67                               | 72                                  | 865.01                    | 862.13                              | 74.15                             | 68.35                           | 796.66                           |
| TW-14-02       | 2019-06-03     | 67                               | 72                                  | 865.01                    | 862.13                              | 74.00                             | 60.75                           | 804.26                           |
| TW-14-02       | 2019-12-02     | 67                               | 72                                  | 865.01                    | 862.13                              | 74.02                             | 60.06                           | 804.95                           |
| TW-16-01       | 2019-02-28     | 73                               | 78                                  | 861.81                    | 862.16                              | 77.80                             | 62.90                           | 798.91                           |
| <b>Plant 3</b> |                |                                  |                                     |                           |                                     |                                   |                                 |                                  |
| CH-14-RO       | 2019-06-03     | 7                                | 12                                  | 866.44                    | 863.68                              | 14.88                             | 6.10                            | 860.34                           |
| CH-14-RO       | 2019-12-02     | 7                                | 12                                  | 866.44                    | 863.68                              | 14.80                             | 6.35                            | 860.09                           |
| LMW-12-09      | 2019-06-03     | 3                                | 8                                   | 863.22                    | 860.40                              | 10.77                             | 3.80                            | 859.42                           |
| LMW-12-09      | 2019-12-02     | 3                                | 8                                   | 863.22                    | 860.40                              | 10.77                             | 3.71                            | 859.51                           |
| LMW-12-10      | 2019-06-03     | 14                               | 19                                  | 866.82                    | 863.60                              | NM                                | 10.55                           | 856.27                           |
| LMW-12-10      | 2019-12-02     | 14                               | 19                                  | 866.82                    | 863.60                              | NM                                | 10.79                           | 856.03                           |

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**Lansing, Michigan**

| Well ID        | Date Collected | Screened Interval Top (feet bgs) | Screened Interval Bottom (feet bgs) | Reference Elevation (TOC) | Ground Surface Elevation (feet msl) | Total Well Depth (feet below TOC) | Depth to Water (feet below TOC) | Groundwater Elevation (feet msl) |
|----------------|----------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|-----------------------------------|---------------------------------|----------------------------------|
| <b>Plant 3</b> |                |                                  |                                     |                           |                                     |                                   |                                 |                                  |
| LMW-12-11      | 2019-06-03     | 15                               | 20                                  | 866.53                    | 863.53                              | 22.86                             | 11.22                           | 855.31                           |
| LMW-12-11      | 2019-12-02     | 15                               | 20                                  | 866.53                    | 863.53                              | 22.85                             | 12.28                           | 854.25                           |
| MW-02-01(3)    | 2019-12-02     | 59                               | 69                                  | 865.54                    | 863.35                              | 72.10                             | 53.22                           | 812.32                           |
| MW-02-02(3)    | 2019-06-03     | 74                               | 84                                  | 862.70                    | 863.11                              | 83.80                             | 61.55                           | 801.15                           |
| MW-02-04(3)    | 2019-06-03     | 76                               | 86                                  | 859.41                    | 859.96                              | 84.03                             | 59.72                           | 799.69                           |
| MW-02-04(3)    | 2019-12-02     | 76                               | 86                                  | 859.41                    | 859.96                              | 84.55                             | 57.88                           | 801.53                           |
| MW-04-01(3)    | 2019-06-25     | 95                               | 105                                 | 862.61                    | 862.93                              | NM                                | 52.80                           | 809.81                           |
| MW-04-01(3)    | 2019-12-02     | 95                               | 105                                 | 862.61                    | 862.93                              | 105.50                            | 52.55                           | 810.06                           |
| MW-04-02(3)    | 2019-06-25     | 126                              | 136                                 | 861.09                    | 861.26                              | NM                                | 62.18                           | 798.91                           |
| MW-04-03(3)    | 2019-06-25     | 80                               | 90                                  | 860.72                    | 861.00                              | NM                                | 60.70                           | 800.02                           |
| MW-04-04(3)    | 2019-06-25     | 72                               | 82                                  | 855.72                    | 856.11                              | NM                                | 55.40                           | 800.32                           |
| MW-06(3)       | 2019-06-03     | 6.5                              | 11.5                                | 859.52                    | 859.79                              | 1.40                              | 11.00                           | 848.52                           |
| MW-12-04       | 2019-06-25     | 77                               | 100                                 | 844.08                    | 844.26                              | NM                                | 46.80                           | 797.28                           |
| MW-12-20       | 2019-06-25     | 75                               | 80                                  | 864.20                    | 861.45                              | NM                                | 63.88                           | 800.32                           |
| MW-12-21       | 2019-06-03     | 70                               | 75                                  | 864.50                    | 861.45                              | 78.05                             | 64.11                           | 800.39                           |
| MW-12-21       | 2019-06-25     | 70                               | 75                                  | 864.50                    | 861.45                              | NM                                | 63.70                           | 800.80                           |
| MW-12-21       | 2019-12-02     | 70                               | 75                                  | 864.50                    | 861.45                              | 78.55                             | 62.94                           | 801.56                           |
| MW-13-22       | 2019-06-03     | 89                               | 94                                  | 864.37                    | 861.50                              | 96.20                             | 66.52                           | 797.85                           |
| MW-13-22       | 2019-06-25     | 89                               | 94                                  | 864.37                    | 861.50                              | NM                                | 65.15                           | 799.22                           |
| MW-13-22       | 2019-08-26     | 89                               | 94                                  | 864.37                    | 861.50                              | 96.20                             | 65.29                           | 799.08                           |
| MW-13-22       | 2019-12-02     | 89                               | 94                                  | 864.37                    | 861.50                              | 96.00                             | 64.65                           | 799.72                           |
| MW-13-23       | 2019-06-03     | 69                               | 74                                  | 864.31                    | 861.45                              | 77.53                             | 65.93                           | 798.38                           |
| MW-13-23       | 2019-06-25     | 69                               | 74                                  | 864.31                    | 861.45                              | NM                                | 65.82                           | 798.49                           |
| MW-13-24       | 2019-06-03     | 69                               | 74                                  | 864.35                    | 861.48                              | 77.35                             | 62.94                           | 801.41                           |
| MW-13-24       | 2019-06-25     | 69                               | 74                                  | 864.35                    | 861.48                              | NM                                | 62.78                           | 801.57                           |
| MW-13-25       | 2019-06-03     | 67                               | 72                                  | 863.77                    | 860.49                              | 75.00                             | 65.79                           | 797.98                           |
| MW-13-25       | 2019-06-25     | 67                               | 72                                  | 863.77                    | 860.49                              | NM                                | 65.71                           | 798.06                           |
| MW-13-25       | 2019-12-03     | 67                               | 72                                  | 863.77                    | 860.49                              | 75.00                             | 64.78                           | 798.99                           |
| MW-13-26       | 2019-06-25     | 72                               | 77                                  | 863.95                    | 861.67                              | NM                                | 62.61                           | 801.34                           |
| MW-13-27       | 2019-06-25     | 67                               | 72                                  | 864.50                    | 861.54                              | NM                                | 66.45                           | 798.05                           |
| MW-13-28       | 2019-06-03     | 99                               | 115.5                               | 864.42                    | 861.61                              | 115.00                            | 67.29                           | 797.13                           |
| MW-13-28       | 2019-06-25     | 99                               | 115.5                               | 864.42                    | 861.61                              | NM                                | 66.93                           | 797.49                           |
| MW-13-28       | 2019-12-02     | 99                               | 115.5                               | 864.42                    | 861.61                              | 106.00                            | 65.51                           | 798.91                           |
| MW-13-29       | 2019-06-03     | 68                               | 73                                  | 862.81                    | 859.81                              | 76.33                             | 65.14                           | 797.67                           |
| MW-13-29       | 2019-06-25     | 68                               | 73                                  | 862.81                    | 859.81                              | NM                                | 65.00                           | 797.81                           |
| MW-13-30       | 2019-06-25     | 72                               | 77                                  | 864.53                    | 861.66                              | NM                                | 64.93                           | 799.60                           |
| MW-13-31       | 2019-06-03     | 5                                | 10                                  | 861.27                    | 858.36                              | 12.70                             | 5.61                            | 855.66                           |
| MW-13-32       | 2019-06-03     | 5                                | 10                                  | 860.11                    | 857.32                              | 12.60                             | 4.43                            | 855.68                           |
| MW-13-34       | 2019-06-03     | 74                               | 79                                  | 853.92                    | 851.82                              | 79.85                             | 62.68                           | 791.24                           |
| MW-13-34       | 2019-08-26     | 74                               | 79                                  | 853.92                    | 851.82                              | 79.85                             | 61.23                           | 792.69                           |
| MW-13-34       | 2019-12-03     | 74                               | 79                                  | 853.92                    | 851.82                              | 79.85                             | 59.32                           | 794.60                           |
| MW-13-37       | 2019-06-25     | 97                               | 112                                 | 866.02                    | 863.75                              | NM                                | 68.17                           | 797.85                           |
| MW-13-38       | 2019-06-03     | 107                              | 124                                 | 866.47                    | 863.71                              | 132.50                            | 69.35                           | 797.12                           |
| MW-13-38       | 2019-06-25     | 107                              | 124                                 | 866.47                    | 863.71                              | NM                                | 68.95                           | 797.52                           |
| MW-13-39B      | 2019-06-25     | 97                               | 112                                 | 860.20                    | 857.33                              | NM                                | 62.35                           | 797.85                           |
| MW-13-40       | 2019-06-03     | 72                               | 77                                  | 860.20                    | 857.33                              | 80.00                             | 59.37                           | 800.83                           |
| MW-13-40       | 2019-06-25     | 72                               | 77                                  | 862.95                    | 859.74                              | NM                                | 58.52                           | 804.43                           |
| MW-13-41       | 2019-06-25     | 77                               | 82                                  | 866.38                    | 863.68                              | NM                                | 60.94                           | 805.44                           |
| MW-13-46       | 2019-06-03     | 68                               | 73                                  | 854.54                    | 852.12                              | 74.64                             | 61.18                           | 793.36                           |
| MW-13-46       | 2019-06-25     | 68                               | 73                                  | 854.54                    | 852.12                              | 74.64                             | 60.83                           | 793.71                           |
| MW-13-46       | 2019-08-26     | 68                               | 73                                  | 854.54                    | 852.12                              | 74.65                             | 59.97                           | 794.57                           |
| MW-13-46       | 2019-12-02     | 68                               | 73                                  | 854.54                    | 852.12                              | 74.60                             | 58.62                           | 795.92                           |
| MW-13-47       | 2019-06-03     | 99                               | 119                                 | 853.74                    | 851.89                              | 113.61                            | 62.05                           | 791.69                           |

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**Table 5**  
**Groundwater Elevations, January to December 2019**  
**2019 Annual Groundwater Monitoring Report**  
**RACER Trust Plants 2, 3, and 6**  
**Lansing, Michigan**

| Well ID        | Date Collected | Screened Interval Top (feet bgs) | Screened Interval Bottom (feet bgs) | Reference Elevation (TOC) | Ground Surface Elevation (feet msl) | Total Well Depth (feet below TOC) | Depth to Water (feet below TOC) | Groundwater Elevation (feet msl) |
|----------------|----------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|-----------------------------------|---------------------------------|----------------------------------|
| <b>Plant 3</b> |                |                                  |                                     |                           |                                     |                                   |                                 |                                  |
| MW-13-47       | 2019-06-25     | 99                               | 119                                 | 853.74                    | 851.89                              | 113.68                            | 61.73                           | 792.01                           |
| MW-13-47       | 2019-12-03     | 99                               | 119                                 | 853.74                    | 851.89                              | 113.70                            | 58.62                           | 795.12                           |
| MW-13-48       | 2019-06-25     | 65                               | 70                                  | 854.83                    | 852.17                              | 73.08                             | 57.19                           | 797.64                           |
| MW-13-48       | 2019-12-03     | 65                               | 70                                  | 854.83                    | 852.17                              | 73.10                             | 56.38                           | 798.45                           |
| MW-13-49       | 2019-06-03     | 73                               | 78                                  | 853.01                    | 850.55                              | 81.65                             | 62.87                           | 790.14                           |
| MW-13-49       | 2019-08-26     | 73                               | 78                                  | 853.01                    | 850.55                              | 81.65                             | 61.45                           | 791.56                           |
| MW-14-64       | 2019-08-26     | 98.6                             | 103.6                               | 864.56                    | 861.77                              | 106.30                            | 65.54                           | 799.02                           |
| MW-14-65       | 2019-06-04     | 5                                | 10                                  | 866.34                    | 863.71                              | 13.27                             | 6.22                            | 860.12                           |
| MW-14-65       | 2019-12-03     | 5                                | 10                                  | 866.34                    | 863.71                              | 13.19                             | 5.90                            | 860.44                           |
| MW-15-71       | 2019-06-03     | 110                              | 115                                 | 864.56                    | 861.58                              | 118.25                            | 64.85                           | 799.71                           |
| MW-18-88       | 2019-06-03     | 6                                | 11                                  | 863.70                    | 860.93                              | 15.08                             | 4.24                            | 859.46                           |
| MW-18-88       | 2019-08-26     | 6                                | 11                                  | 863.70                    | 860.93                              | 15.05                             | 8.09                            | 855.61                           |
| MW-18-88       | 2019-12-02     | 6                                | 11                                  | 863.70                    | 860.93                              | 15.00                             | 3.69                            | 860.01                           |
| MW-18-89       | 2019-06-03     | 7                                | 12                                  | 866.53                    | 863.51                              | 15.69                             | 4.61                            | 861.92                           |
| MW-18-89       | 2019-08-26     | 7                                | 12                                  | 866.53                    | 863.51                              | 15.70                             | 10.25                           | 856.28                           |
| MW-18-89       | 2019-12-02     | 7                                | 12                                  | 866.53                    | 863.51                              | 15.60                             | 4.82                            | 861.71                           |
| MW-18-90       | 2019-06-03     | 15                               | 20                                  | 866.32                    | 863.25                              | 23.23                             | 9.26                            | 857.06                           |
| MW-18-90       | 2019-08-26     | 15                               | 20                                  | 866.32                    | 863.25                              | 23.25                             | 11.69                           | 854.63                           |
| MW-18-90       | 2019-12-02     | 15                               | 20                                  | 866.32                    | 863.25                              | 23.15                             | 9.39                            | 856.93                           |
| MW-18-91       | 2019-06-03     | 7                                | 12                                  | 865.94                    | 863.43                              | 15.12                             | 4.59                            | 861.35                           |
| MW-18-91       | 2019-08-26     | 7                                | 12                                  | 865.94                    | 863.43                              | 15.10                             | 8.34                            | 857.60                           |
| MW-18-91       | 2019-12-03     | 7                                | 12                                  | 865.94                    | 863.43                              | 14.98                             | 4.84                            | 861.10                           |
| MW-18-92       | 2019-06-03     | 23                               | 28                                  | 870.43                    | 869.08                              | 30.16                             | 11.48                           | 858.95                           |
| MW-18-92       | 2019-12-02     | 23                               | 28                                  | 870.43                    | 869.08                              | 30.10                             | 13.01                           | 857.42                           |
| MW-18-93       | 2019-03-06     | 77.3                             | 82.3                                | 863.77                    | 860.99                              | 85.25                             | 52.12                           | 811.65                           |
| MW-18-93       | 2019-06-03     | 77.3                             | 82.3                                | 863.77                    | 860.99                              | 85.40                             | 52.10                           | 811.67                           |
| MW-18-93       | 2019-06-25     | 77.3                             | 82.3                                | 863.77                    | 860.99                              | NM                                | 51.78                           | 811.99                           |
| MW-18-93       | 2019-12-02     | 77.3                             | 82.3                                | 863.77                    | 860.99                              | 84.90                             | 50.90                           | 812.87                           |
| MW-18-94       | 2019-03-06     | 72                               | 77                                  | 866.34                    | 863.86                              | 79.65                             | 57.45                           | 808.89                           |
| MW-18-94       | 2019-06-03     | 72                               | 77                                  | 866.34                    | 863.86                              | 79.65                             | 57.43                           | 808.91                           |
| MW-18-94       | 2019-06-25     | 72                               | 77                                  | 866.34                    | 863.86                              | NM                                | 57.00                           | 809.34                           |
| MW-18-94       | 2019-12-03     | 72                               | 77                                  | 866.34                    | 863.86                              | 79.65                             | 55.82                           | 810.52                           |
| MW-18-95       | 2019-03-05     | 4.5                              | 9.5                                 | 864.66                    | 861.76                              | 12.50                             | 6.93                            | 857.73                           |
| MW-18-95       | 2019-06-03     | 4.5                              | 9.5                                 | 864.66                    | 861.76                              | 12.53                             | 6.48                            | 858.18                           |
| MW-18-95       | 2019-08-26     | 4.5                              | 9.5                                 | 864.66                    | 861.76                              | 12.55                             | 7.94                            | 856.72                           |
| MW-18-95       | 2019-12-02     | 4.5                              | 9.5                                 | 864.66                    | 861.76                              | 12.45                             | 6.41                            | 858.25                           |
| MW-18-96       | 2019-03-05     | 7                                | 12                                  | 864.60                    | 861.64                              | 14.85                             | 14.84                           | 849.76                           |
| MW-18-96       | 2019-06-03     | 7                                | 12                                  | 864.60                    | 861.64                              | 14.82                             | NM                              | NM                               |
| MW-18-96       | 2019-12-02     | 7                                | 12                                  | 864.60                    | 861.64                              | 14.80                             | 14.80                           | 849.80                           |
| MW-18-97       | 2019-03-06     | 85                               | 90                                  | 860.91                    | 861.64                              | 91.75                             | 60.82                           | 800.09                           |
| MW-18-97       | 2019-06-03     | 85                               | 90                                  | 860.91                    | 859.13                              | 91.63                             | 61.76                           | 799.15                           |
| MW-18-97       | 2019-06-25     | 85                               | 90                                  | 860.91                    | 859.13                              | NM                                | 61.38                           | 799.53                           |
| MW-18-97       | 2019-12-02     | 85                               | 90                                  | 860.91                    | 859.13                              | 92.70                             | 60.44                           | 800.47                           |
| MW-18-98       | 2019-03-05     | 7                                | 12                                  | 862.16                    | 859.10                              | 14.90                             | 7.91                            | 854.25                           |
| MW-18-98       | 2019-06-03     | 7                                | 12                                  | 862.16                    | 859.10                              | 14.97                             | 6.27                            | 855.89                           |
| MW-18-98       | 2019-08-26     | 7                                | 12                                  | 862.16                    | 859.10                              | 14.95                             | 9.94                            | 852.22                           |
| MW-18-98       | 2019-12-02     | 7                                | 12                                  | 862.16                    | 859.10                              | 14.90                             | 5.19                            | 856.97                           |
| MW-18-99       | 2019-03-05     | 9                                | 14                                  | 862.47                    | 859.95                              | 16.90                             | 6.69                            | 855.78                           |
| MW-18-99       | 2019-06-03     | 9                                | 14                                  | 862.47                    | 859.95                              | 16.93                             | 5.48                            | 856.99                           |
| MW-18-99       | 2019-08-26     | 9                                | 14                                  | 862.47                    | 859.95                              | 16.95                             | 7.73                            | 854.74                           |
| MW-18-99       | 2019-12-02     | 9                                | 14                                  | 862.47                    | 859.95                              | 16.85                             | 5.44                            | 857.03                           |
| MW-18-100      | 2019-03-05     | 8                                | 13                                  | 863.94                    | 861.49                              | 15.85                             | 11.13                           | 852.81                           |
| MW-18-100      | 2019-06-04     | 8                                | 13                                  | 863.94                    | 861.49                              | 15.92                             | 10.41                           | 853.53                           |

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**Table 5**  
**Groundwater Elevations, January to December 2019**  
**2019 Annual Groundwater Monitoring Report**  
**RACER Trust Plants 2, 3, and 6**  
**Lansing, Michigan**

| Well ID        | Date Collected | Screened Interval Top (feet bgs) | Screened Interval Bottom (feet bgs) | Reference Elevation (TOC) | Ground Surface Elevation (feet msl) | Total Well Depth (feet below TOC) | Depth to Water (feet below TOC) | Groundwater Elevation (feet msl) |
|----------------|----------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|-----------------------------------|---------------------------------|----------------------------------|
| <b>Plant 3</b> |                |                                  |                                     |                           |                                     |                                   |                                 |                                  |
| MW-18-100      | 2019-12-02     | 8                                | 13                                  | 863.94                    | 861.49                              | 15.85                             | 9.71                            | 854.23                           |
| MW-18-101      | 2019-03-06     | 80                               | 85                                  | 863.87                    | 861.24                              | 86.90                             | 62.73                           | 801.14                           |
| MW-18-101      | 2019-06-03     | 80                               | 85                                  | 863.87                    | 861.24                              | 86.95                             | 63.15                           | 800.72                           |
| MW-18-101      | 2019-06-25     | 80                               | 85                                  | 863.87                    | 861.24                              | NM                                | 62.72                           | 801.15                           |
| MW-18-101      | 2019-12-02     | 80                               | 85                                  | 863.87                    | 861.24                              | 87.45                             | 61.72                           | 802.15                           |
| MW-18-102      | 2019-03-04     | 10                               | 15                                  | 863.13                    | 863.44                              | 14.75                             | 7.69                            | 855.44                           |
| MW-18-102      | 2019-06-03     | 10                               | 15                                  | 863.13                    | 863.44                              | 14.75                             | 6.61                            | 856.52                           |
| MW-18-102      | 2019-12-02     | 10                               | 15                                  | 863.13                    | 863.44                              | 14.65                             | 7.40                            | 855.73                           |
| MW-18-103      | 2019-03-04     | 5                                | 10                                  | 859.13                    | 859.74                              | 10.80                             | 0.93                            | 858.20                           |
| MW-18-103      | 2019-06-03     | 5                                | 10                                  | 859.13                    | 859.74                              | 10.80                             | 1.03                            | 858.10                           |
| MW-18-103      | 2019-08-26     | 5                                | 10                                  | 859.13                    | 859.74                              | 10.80                             | 5.41                            | 853.72                           |
| MW-18-103      | 2019-12-02     | 5                                | 10                                  | 859.13                    | 859.74                              | 10.70                             | 0.11                            | 859.02                           |
| MW-18-104      | 2019-03-04     | 5                                | 10                                  | 859.12                    | 859.82                              | 9.50                              | 0.60                            | 858.52                           |
| MW-18-104      | 2019-06-03     | 5                                | 10                                  | 859.12                    | 859.82                              | 9.52                              | 0.27                            | 858.85                           |
| MW-18-104      | 2019-12-02     | 5                                | 10                                  | 859.12                    | 859.82                              | 9.45                              | 0.00                            | 859.12                           |
| MW-18-105      | 2019-03-04     | 6                                | 11                                  | 858.59                    | 859.01                              | 11.20                             | 0.20                            | 858.39                           |
| MW-18-105      | 2019-06-03     | 6                                | 11                                  | 858.59                    | 859.01                              | 11.22                             | 2.04                            | 856.55                           |
| MW-18-105      | 2019-08-26     | 6                                | 11                                  | 858.59                    | 859.01                              | 11.20                             | 2.97                            | 855.62                           |
| MW-18-105      | 2019-12-02     | 6                                | 11                                  | 858.59                    | 859.01                              | 11.20                             | 0.00                            | 858.59                           |
| MW-18-106      | 2019-03-04     | 5                                | 10                                  | 866.15                    | 866.51                              | 9.55                              | 1.64                            | 864.51                           |
| MW-18-106      | 2019-06-03     | 5                                | 10                                  | 866.15                    | 866.51                              | 9.60                              | 2.43                            | 863.72                           |
| MW-18-106      | 2019-12-02     | 5                                | 10                                  | 866.15                    | 866.51                              | 9.55                              | 1.11                            | 865.04                           |
| MW-19          | 2019-06-25     | 55                               | 65                                  | 859.74                    | 859.92                              | NM                                | 50.67                           | 809.07                           |
| MW-19-107      | 2019-06-03     | 23                               | 28                                  | 870.65                    | 869.20                              | 29.92                             | 12.19                           | 858.46                           |
| MW-19-107      | 2019-12-02     | 23                               | 28                                  | 870.65                    | 869.20                              | 29.85                             | 14.34                           | 856.31                           |
| MW-19-108      | 2019-06-03     | 23                               | 28                                  | 872.60                    | 870.22                              | 30.14                             | 14.14                           | 858.46                           |
| MW-19-108      | 2019-12-02     | 23                               | 28                                  | 872.60                    | 870.22                              | 30.05                             | 17.89                           | 854.71                           |
| MW-19-109      | 2019-06-03     | 85                               | 90                                  | 862.53                    | 861.58                              | 86.80                             | 68.90                           | 793.63                           |
| MW-19-109      | 2019-08-26     | 85                               | 90                                  | 862.53                    | 861.58                              | 86.80                             | 44.37                           | 818.16                           |
| MW-19-109      | 2019-12-03     | 85                               | 90                                  | 862.53                    | 861.58                              | 91.90                             | 35.00                           | 827.53                           |
| MW-19-110      | 2019-12-02     | 8                                | 13                                  | 863.67                    | 860.72                              | 16.20                             | 15.98                           | 847.69                           |
| MW-19-111      | 2019-12-02     | 20                               | 25                                  | 874.51                    | 871.70                              | 27.40                             | 25.13                           | 849.38                           |
| MW-19-112      | 2019-12-02     | 9                                | 14                                  | 861.63                    | 858.53                              | 17.55                             | 10.66                           | 850.97                           |
| MW-19-113      | 2019-12-02     | 16                               | 21                                  | 860.67                    | 857.73                              | 24.60                             | 17.85                           | 842.82                           |
| MW-19-114      | 2019-12-02     | 6                                | 11                                  | 861.25                    | 861.79                              | 10.75                             | 0.00                            | 861.25                           |
| MW-22          | 2019-06-25     | 52.5                             | 62.5                                | 859.69                    | 860.08                              | NM                                | 50.00                           | 809.69                           |
| MW-23          | 2019-06-03     | 52                               | 62                                  | 859.45                    | 859.76                              | NM                                | NM                              | NM                               |
| MW-23          | 2019-06-25     | 52                               | 62                                  | 859.45                    | 859.76                              | NM                                | 44.22                           | 815.23                           |
| MW-23          | 2019-12-03     | 52                               | 62                                  | 859.45                    | 859.76                              | NM                                | 0.00                            | 859.45                           |
| MW-88-1        | 2019-06-25     | 103.5                            | 140                                 | 858.75                    | 859.06                              | NM                                | 64.49                           | 794.26                           |
| MW-91-2        | 2019-06-03     | 68                               | 78                                  | 863.62                    | 863.88                              | 76.65                             | 58.75                           | 804.87                           |
| MW-91-2        | 2019-06-25     | 68                               | 78                                  | 863.62                    | 863.88                              | NM                                | 57.40                           | 806.22                           |
| MW-91-2R       | 2019-12-02     | 75                               | 80                                  | NS                        | NS                                  | 84.20                             | 59.49                           | NM                               |
| MW-91-3        | 2019-06-25     | 105                              | 117                                 | 860.81                    | 859.35                              | NM                                | 65.25                           | 795.56                           |
| MW-91-4        | 2019-06-25     | 116                              | 132.5                               | 855.59                    | 855.93                              | NM                                | 56.88                           | 798.71                           |
| MW-91-5        | 2019-06-03     | 112.5                            | 128                                 | 860.61                    | 861.20                              | 128.60                            | 60.89                           | 799.72                           |
| MW-91-5        | 2019-06-25     | 112.5                            | 128                                 | 860.61                    | 861.20                              | NM                                | 60.12                           | 800.49                           |
| MW-91-5        | 2019-12-02     | 112.5                            | 128                                 | 860.61                    | 861.20                              | 127.85                            | 59.11                           | 801.50                           |
| MW-91-6        | 2019-06-03     | 82                               | 98                                  | 851.84                    | 852.22                              | 95.45                             | 58.53                           | 793.31                           |
| MW-91-6        | 2019-06-25     | 82                               | 98                                  | 851.84                    | 852.22                              | 95.45                             | 58.48                           | 793.36                           |
| MW-91-6        | 2019-12-02     | 82                               | 98                                  | 851.84                    | 852.22                              | 95.40                             | 58.94                           | 792.90                           |
| P2-SB-20       | 2019-06-03     | 8                                | 13                                  | 864.46                    | 861.12                              | 16.30                             | 8.65                            | 855.81                           |
| PW-14-03R      | 2019-06-03     | 85                               | 90                                  | 864.31                    | 861.55                              | 97.00                             | 69.13                           | 795.18                           |

See Notes on last page.

**Table 5**  
**Groundwater Elevations, January to December 2019**  
**2019 Annual Groundwater Monitoring Report**  
**RACER Trust Plants 2, 3, and 6**  
**Lansing, Michigan**

| Well ID         | Date Collected | Screened Interval Top (feet bgs) | Screened Interval Bottom (feet bgs) | Reference Elevation (TOC) | Ground Surface Elevation (feet msl) | Total Well Depth (feet below TOC) | Depth to Water (feet below TOC) | Groundwater Elevation (feet msl) |
|-----------------|----------------|----------------------------------|-------------------------------------|---------------------------|-------------------------------------|-----------------------------------|---------------------------------|----------------------------------|
| <b>Plant 3</b>  |                |                                  |                                     |                           |                                     |                                   |                                 |                                  |
| PW-14-03R       | 2019-08-26     | 85                               | 90                                  | 864.31                    | 861.55                              | 94.30                             | 67.70                           | 796.61                           |
| PW-14-03R       | 2019-12-03     | 85                               | 90                                  | 864.31                    | 861.55                              | 94.25                             | 66.80                           | 797.51                           |
| TW-14-06        | 2019-06-03     | 82                               | 87                                  | 864.30                    | 861.50                              | 88.65                             | 68.18                           | 796.12                           |
| TW-14-06        | 2019-08-26     | 82                               | 87                                  | 864.30                    | 861.50                              | 88.65                             | 59.85                           | 804.45                           |
| TW-14-06        | 2019-12-03     | 82                               | 87                                  | 864.30                    | 861.50                              | 86.55                             | 64.36                           | 799.94                           |
| TW-15-11        | 2019-08-26     | 85                               | 90                                  | 864.51                    | 861.60                              | 86.85                             | 67.35                           | 797.16                           |
| TW-15-11        | 2019-12-03     | 85                               | 90                                  | 864.51                    | 861.60                              | 86.90                             | 66.49                           | 798.02                           |
| UNK-10          | 2019-06-03     | 11                               | 16                                  | 859.34                    | 860.05                              | 11.40                             | 0.50                            | 858.84                           |
| UNK-11          | 2019-06-03     | 6.5                              | 11.5                                | 859.91                    | 860.17                              | 11.50                             | 3.20                            | 856.71                           |
| UNK-15          | 2019-06-03     | 11                               | 16                                  | 859.56                    | 859.94                              | 15.70                             | 1.62                            | 857.94                           |
| UNK-15          | 2019-08-26     | 11                               | 16                                  | 859.56                    | 859.94                              | 15.65                             | 3.54                            | 856.02                           |
| UNK-15          | 2019-12-03     | 11                               | 16                                  | 859.56                    | 859.94                              | 15.65                             | 1.62                            | 857.94                           |
| <b>Plant 6</b>  |                |                                  |                                     |                           |                                     |                                   |                                 |                                  |
| MW-02-03(6)     | 2019-06-03     | 35                               | 45                                  | 869.54                    | 869.97                              | 44.40                             | 30.68                           | 838.86                           |
| MW-03-04        | 2019-06-03     | 33                               | 43                                  | 865.28                    | 865.53                              | 42.65                             | 22.05                           | 843.23                           |
| MW-03-05        | 2019-06-03     | 35                               | 45                                  | 868.90                    | 869.14                              | 48.09                             | 24.31                           | 844.59                           |
| MW-03-06        | 2019-06-03     | 30                               | 40                                  | 870.45                    | 870.80                              | 40.60                             | 36.22                           | 834.23                           |
| MW-03-08        | 2019-06-03     | 35                               | 45                                  | 869.03                    | 869.39                              | NM                                | NM                              | NM                               |
| MW-04-01(6)     | 2019-06-25     | 78                               | 88                                  | 866.85                    | 867.15                              | NM                                | 67.38                           | 799.47                           |
| MW-04-04R       | 2019-06-25     | 82                               | 110                                 | 873.31                    | 870.64                              | 114.00                            | 73.32                           | 799.99                           |
| MW-04-05(6)     | 2019-06-03     | 20                               | 30                                  | 858.33                    | 858.87                              | 29.62                             | 9.88                            | 848.45                           |
| MW-04-06R       | 2019-06-25     | 74                               | 99.5                                | 861.56                    | 858.59                              | 77.98                             | 62.90                           | 798.66                           |
| MW-12-03        | 2019-06-25     | 57                               | 80                                  | 859.10                    | 856.71                              | NM                                | 60.58                           | 798.52                           |
| MW-12-11        | 2019-06-03     | 13                               | 18                                  | 857.26                    | 857.68                              | 16.70                             | 3.75                            | 853.51                           |
| MW-12-12        | 2019-06-03     | 13                               | 18                                  | 874.34                    | 874.61                              | 17.20                             | 5.90                            | 868.44                           |
| MW-12-12        | 2019-08-26     | 13                               | 18                                  | 874.34                    | 874.61                              | 17.20                             | 10.35                           | 863.99                           |
| MW-12-12        | 2019-12-03     | 13                               | 18                                  | 874.34                    | 874.61                              | 17.20                             | 5.09                            | 869.25                           |
| MW-12-13        | 2019-06-03     | 18.5                             | 23.5                                | 882.60                    | 880.51                              | 25.45                             | 9.85                            | 872.75                           |
| MW-12-13        | 2019-08-26     | 18.5                             | 23.5                                | 882.60                    | 880.51                              | 25.45                             | 12.86                           | 869.74                           |
| MW-12-13        | 2019-12-03     | 18.5                             | 23.5                                | 882.60                    | 880.51                              | 25.50                             | 9.09                            | 873.51                           |
| MW-12-16        | 2019-06-03     | 28                               | 33                                  | 864.24                    | 864.73                              | 32.20                             | 22.62                           | 841.62                           |
| MW-13-35        | 2019-06-03     | 25                               | 30                                  | 864.81                    | 865.23                              | 29.45                             | 23.25                           | 841.56                           |
| MW-13-36R       | 2019-06-03     | 5.5                              | 10.5                                | 878.04                    | 875.28                              | 12.69                             | 4.40                            | 873.64                           |
| MW-13-36R       | 2019-08-26     | 5.5                              | 10.5                                | 878.04                    | 875.28                              | 12.70                             | 9.09                            | 868.95                           |
| MW-13-36R       | 2019-12-03     | 5.5                              | 10.5                                | 878.04                    | 875.28                              | 12.70                             | 4.15                            | 873.89                           |
| MW-13-50        | 2019-06-25     | 85                               | 107                                 | 872.85                    | 869.93                              | NM                                | 75.91                           | 796.94                           |
| MW-13-52        | 2019-06-25     | 70                               | 80                                  | 872.50                    | 869.84                              | NM                                | 68.81                           | 803.69                           |
| MW-14-67        | 2019-06-03     | 13                               | 18                                  | 877.76                    | 875.07                              | 20.84                             | 5.10                            | 872.66                           |
| MW-14-67        | 2019-08-26     | 13                               | 18                                  | 877.76                    | 875.07                              | 20.85                             | 7.87                            | 869.89                           |
| MW-14-67        | 2019-12-03     | 13                               | 18                                  | 877.76                    | 875.07                              | 20.80                             | 4.21                            | 873.55                           |
| MW-14-70        | 2019-06-03     | 16                               | 21                                  | 882.79                    | 880.08                              | 23.10                             | 10.16                           | 872.63                           |
| MW-14-70        | 2019-08-26     | 16                               | 21                                  | 882.79                    | 880.08                              | 23.10                             | 13.24                           | 869.55                           |
| MW-14-70        | 2019-12-03     | 16                               | 21                                  | 882.79                    | 880.08                              | 23.10                             | 9.37                            | 873.42                           |
| MWBP-10-UST5-6  | 2019-06-05     | 28                               | 38                                  | 867.70                    | 867.99                              | 36.80                             | 29.47                           | 838.23                           |
| MWBP-11-UST1-4  | 2019-06-03     | 9                                | 19                                  | 868.66                    | 869.07                              | 11.24                             | 2.51                            | 866.15                           |
| MWBP-12A-UST1-4 | 2019-06-03     | 28                               | 38                                  | 869.74                    | 869.96                              | 36.68                             | 28.41                           | 841.33                           |
| MWBP-12-UST1-4  | 2019-06-03     | 15                               | 25                                  | 870.02                    | 870.58                              | 11.26                             | 7.14                            | 862.88                           |
| P6-SB-07        | 2019-06-03     | 15                               | 20                                  | 877.36                    | 874.36                              | 23.56                             | 5.45                            | 871.91                           |
| P6-SB-07        | 2019-08-26     | 15                               | 20                                  | 877.36                    | 874.36                              | 23.55                             | 9.19                            | 868.17                           |
| P6-SB-07        | 2019-12-03     | 15                               | 20                                  | 877.36                    | 874.36                              | 23.60                             | 5.08                            | 872.28                           |

See Notes on last page.



**Table 5**  
**Groundwater Elevations, January to December 2018**  
**2018 Annual Groundwater Monitoring Report**  
**RACER Trust Plants 2, 3, and 6**  
**Lansing, Michigan**

**Notes:**  
\* Groundwater elevations have been corrected for the presence of LNAPL using a measured LNAPL density of 0.8995 gram per milliliter.  
bgs = below ground surface  
LNAPL = light nonaqueous phase liquid  
msl = mean sea level  
NM = not collected or not available  
NS = not surveyed  
RACER = Revitalizing Auto Communities Environmental Response  
TOC = top of casing

**Table 6**  
**Bedrock Vertical Gradients**  
**2018 Annual Groundwater Monitoring Report**  
**RACER Trust Plants 2, 3, and 6**  
**Lansing, Michigan**

|             |                 | Screen (feet belowgrade) |        |           | Reference Elevation<br>(feet amsl) | Groundwater<br>Elevation<br>6/25/19<br>(feet amsl) | Vertical<br>Gradient (ft/ft) | Formation |
|-------------|-----------------|--------------------------|--------|-----------|------------------------------------|----------------------------------------------------|------------------------------|-----------|
|             |                 | Top                      | Bottom | Mid-point |                                    |                                                    |                              |           |
| Plant 2     |                 |                          |        |           |                                    |                                                    |                              |           |
| MW-14-63    | W. Bedrock      | 68                       | 73     | 70.5      | 854.64                             | 800.44                                             | 0.02                         | GR Fm     |
| MW-12-02    | Bedrock         | 87                       | 110    | 98.5      | 853.91                             | 799.81                                             |                              |           |
|             |                 |                          |        |           |                                    |                                                    |                              |           |
| MW-13-43    | W. Bedrock      | 72                       | 77     | 74.5      | 863.82                             | 798.34                                             | 0.27                         | Sag Fm    |
| MW-13-44    | Bedrock         | 96                       | 115    | 105.5     | 864.24                             | 790.12                                             |                              |           |
|             |                 |                          |        |           |                                    |                                                    |                              |           |
| MW-14-61    | W. Bedrock      | 70                       | 75     | 72.5      | 865.51                             | 799.51                                             | 0.26                         | Sag Fm    |
| MW-12-06    | Bedrock         | 80.6                     | 99.5   | 90.1      | 864.64                             | 795.02                                             |                              |           |
|             |                 |                          |        |           |                                    |                                                    |                              |           |
| MW-15-72    | W. Bedrock      | 63                       | 68     | 65.5      | 865.09                             | 805.79                                             | 0.35                         | Sag Fm    |
| MW-12-05R   | Bedrock         | 100                      | 112    | 106.0     | 864.79                             | 791.79                                             |                              |           |
| Plant 3     |                 |                          |        |           |                                    |                                                    |                              |           |
| MW-13-22    | W. Bedrock      | 89                       | 94     | 91.5      | 864.37                             | 799.22                                             | 0.11                         | GR Fm     |
| MW-13-28    | Bedrock         | 99                       | 115.5  | 107.3     | 864.42                             | 797.49                                             |                              |           |
|             |                 |                          |        |           |                                    |                                                    |                              |           |
| MW-13-46    | W. Bedrock      | 68                       | 73     | 70.5      | 854.54                             | 793.71                                             | 0.02                         | GR Fm     |
| MW-91-6     | Bedrock         | 82                       | 98     | 90        | 851.84                             | 793.36                                             |                              |           |
|             |                 |                          |        |           |                                    |                                                    |                              |           |
| MW-04-03(3) | Deep Overburden | 80                       | 90     | 85        | 860.72                             | 803.24                                             | 0.03                         | GR Fm     |
| MW-04-02(3) | Bedrock         | 126                      | 136    | 131       | 861.09                             | 801.76                                             |                              |           |
|             |                 |                          |        |           |                                    |                                                    |                              |           |
| MW-04-04(3) | Deep Overburden | 72                       | 82     | 77        | 855.72                             | 808.54                                             | 0.03                         | GR Fm     |
| MW-91-4     | Bedrock         | 116                      | 132.5  | 124.3     | 855.59                             | 807.06                                             |                              |           |
|             |                 |                          |        |           |                                    |                                                    |                              |           |
| MW-13-41    | Deep Overburden | 77                       | 82     | 79.5      | 866.38                             | 803.00                                             | 0.22                         | Sag Fm    |
| MW-13-38    | Bedrock         | 107                      | 124    | 115.5     | 866.47                             | 794.99                                             |                              |           |
| Plant 6     |                 |                          |        |           |                                    |                                                    |                              |           |
| MW-13-52    | W. Bedrock      | 70                       | 80     | 75        | 872.50                             | 795.13                                             | 0.34                         | Sag Fm    |
| MW-13-50    | Bedrock         | 85                       | 107    | 96        | 872.85                             | 788.03                                             |                              |           |

**Notes:**

ft/ft = foot per foot

GR Fm = Grand River Formation

amsl = above mean sea level

RACER = Revitalizing Auto Communities Environmental Response

Sag Fm = Saginaw Formation

W. Bedrock = weathered bedrock

Vertical Gradient Geometric Mean Sag Fm

0.28

Vertical Gradient Geometric Mean GR Fm

0.03

Table 7  
Mann-Kendall Trend Test Results  
2019 Annual Groundwater Monitoring Report  
RACER Trust Plants 2, 3, and 6  
Lansing, Michigan

| Analyte                               | Well ID        | Start Date | End Date   | Most Recent Result | Recent Result Units | Sample Size (n) | Minimum Result | Maximum Result | Standard Deviation | Arithmetic Mean | Geometric Mean | Sum of Trend (S) | Probability (p) | Result           | % of Detects |
|---------------------------------------|----------------|------------|------------|--------------------|---------------------|-----------------|----------------|----------------|--------------------|-----------------|----------------|------------------|-----------------|------------------|--------------|
| Perched                               |                |            |            |                    |                     |                 |                |                |                    |                 |                |                  |                 |                  |              |
| PFOS, PFOA                            |                |            |            |                    |                     |                 |                |                |                    |                 |                |                  |                 |                  |              |
| PFOS                                  | CH-14-RO       | 12/16/2016 | 12/06/2019 | 11.9               | µg/L                | 6               | 11             | 12.5           | 0.6344             | 11.880          | 11.862         | -5               | 0.2350          | NO TREND         | 100.00%      |
| PFOS                                  | P6-SB-07       | 06/07/2018 | 12/05/2019 | 0.0474             | µg/L                | 4               | 0.0474         | 0.103          | 0.0232             | 0.070           | 0.068          | -4               | 0.1670          | NO TREND         | 100.00%      |
| PFOS + PFOA                           | CH-14-RO       | 12/16/2016 | 12/06/2019 | 12.016             | µg/L                | 6               | 11.108         | 14.19          | 1.1078             | 12.240          | 12.197         | -5               | 0.2350          | NO TREND         | 100.00%      |
| PFOS + PFOA                           | P6-SB-07       | 06/07/2018 | 12/05/2019 | 0.7354             | µg/L                | 4               | 0.7354         | 1.707          | 0.4209             | 1.260           | 1.202          | -6               | 0.0420          | DECREASING TREND | 100.00%      |
| Metals                                |                |            |            |                    |                     |                 |                |                |                    |                 |                |                  |                 |                  |              |
| Arsenic                               | MW-12-11       | 12/18/2012 | 06/12/2019 | 6                  | µg/L                | 15              | 4              | 62             | 14.3201            | 12.270          | 8.960          | 19               | 0.1838          | NO TREND         | 93.75%       |
| Arsenic                               | MW-12-16       | 12/18/2012 | 06/10/2019 | 5                  | µg/L                | 15              | 5              | 51             | 11.8019            | 21.000          | 18.338         | 2                | 0.4801          | NO TREND         | 100.00%      |
| Arsenic                               | MWBP-10-UST5-6 | 10/07/2011 | 06/05/2019 | 12                 | µg/L                | 15              | 3              | 51             | 13.7761            | 13.730          | 9.206          | 51               | 0.0063          | INCREASING TREND | 83.33%       |
| Arsenic                               | MWBP-12-UST1-4 | 10/18/2011 | 06/05/2019 | 13                 | µg/L                | 13              | 6              | 18             | 3.8113             | 13.230          | 12.607         | 6                | 0.3791          | NO TREND         | 100.00%      |
| Chromium (VI)                         | CH-14-RO       | 08/22/2011 | 06/12/2019 | 8.8                | µg/L                | 14              | 6.68           | 28.4           | 6.6905             | 17.370          | 16.083         | -77              | 0.0000          | DECREASING TREND | 100.00%      |
| Copper                                | MW-13-32       | 08/27/2013 | 06/11/2019 | 6                  | µg/L                | 16              | 6              | 67             | 16.2394            | 18.380          | 14.477         | -64              | 0.0022          | DECREASING TREND | 84.21%       |
| Nickel                                | MW-12-11       | 12/18/2012 | 06/12/2019 | 6                  | µg/L                | 15              | 5              | 493            | 126.4487           | 71.000          | 29.619         | -9               | 0.3461          | NO TREND         | 93.75%       |
| Nickel                                | MW-12-13       | 01/28/2013 | 06/12/2019 | 23                 | µg/L                | 16              | 7              | 71             | 15.0505            | 19.630          | 16.604         | -3               | 0.4639          | NO TREND         | 94.12%       |
| Nickel                                | MW-13-31       | 08/22/2013 | 06/11/2019 | 18                 | µg/L                | 19              | 2.16           | 209            | 52.7488            | 46.190          | 27.101         | 23               | 0.2207          | NO TREND         | 100.00%      |
| Nickel                                | MW-13-32       | 08/27/2013 | 06/11/2019 | 390                | µg/L                | 19              | 43             | 4660           | 1,199.8916         | 1,291.160       | 826.240        | -27              | 0.1815          | NO TREND         | 100.00%      |
| Vanadium                              | MW-13-36R      | 12/18/2013 | 06/12/2019 | 9                  | µg/L                | 16              | 5              | 27             | 5.1344             | 11.310          | 10.415         | 4                | 0.4458          | NO TREND         | 100.00%      |
| Volatile Organic Compounds            |                |            |            |                    |                     |                 |                |                |                    |                 |                |                  |                 |                  |              |
| 1,1-Dichloroethene                    | MW-14-59       | 09/18/2014 | 06/06/2019 | 16                 | µg/L                | 9               | 16             | 39             | 7.4517             | 26.560          | 25.596         | -15              | 0.0750          | DECREASING TREND | 100.00%      |
| 1,4-Dioxane                           | MW-02-03(6)    | 10/18/2011 | 06/10/2019 | 18                 | µg/L                | 14              | 13             | 21             | 2.3110             | 16.570          | 16.421         | 30               | 0.0523          | INCREASING TREND | 100.00%      |
| 1,4-Dioxane                           | MW-03-06       | 10/07/2011 | 06/10/2019 | 6                  | µg/L                | 14              | 6              | 10             | 1.5046             | 7.570           | 7.439          | -39              | 0.0146          | DECREASING TREND | 100.00%      |
| 1,4-Dioxane                           | MW-14-58       | 09/17/2014 | 06/06/2019 | 68                 | µg/L                | 12              | 14             | 78             | 20.5712            | 47.920          | 42.900         | 21               | 0.0846          | INCREASING TREND | 100.00%      |
| 1,4-Dioxane                           | MW-14-59       | 09/18/2014 | 06/06/2019 | 41                 | µg/L                | 9               | 41             | 280            | 91.5753            | 161.560         | 133.518        | -31              | 0.0003          | DECREASING TREND | 100.00%      |
| 1,4-Dioxane                           | MW-14-60       | 09/19/2014 | 06/06/2019 | 97                 | µg/L                | 9               | 97             | 200            | 31.7114            | 146.890         | 143.766        | -32              | 0.0001          | DECREASING TREND | 100.00%      |
| 1,4-Dioxane                           | MW-14-62       | 09/19/2014 | 06/06/2019 | 30                 | µg/L                | 9               | 30             | 230            | 72.7629            | 98.220          | 77.942         | -14              | 0.0900          | DECREASING TREND | 100.00%      |
| Benzene                               | MWBP-12-UST1-4 | 10/18/2011 | 06/05/2019 | 284                | µg/L                | 10              | 2              | 284            | 90.7558            | 82.200          | 33.583         | 22               | 0.0300          | INCREASING TREND | 76.92%       |
| Vinyl Chloride                        | MW-14-60       | 09/19/2014 | 06/06/2019 | 12                 | µg/L                | 9               | 2              | 12             | 3.6401             | 5.670           | 4.692          | 19               | 0.0300          | INCREASING TREND | 100.00%      |
| Weathered Bedrock and Deep Overburden |                |            |            |                    |                     |                 |                |                |                    |                 |                |                  |                 |                  |              |
| Volatile Organic Compounds            |                |            |            |                    |                     |                 |                |                |                    |                 |                |                  |                 |                  |              |
| 1,4-Dioxane                           | MW-12-21       | 02/08/2013 | 12/06/2019 | 250                | µg/L                | 16              | 165            | 510            | 113.3750           | 343.188         | 324.151        | -64              | 0.0022          | DECREASING TREND | 94.12%       |
| 1,4-Dioxane                           | MW-13-22       | 03/28/2013 | 12/05/2019 | 162                | µg/L                | 18              | 52             | 270            | 59.8755            | 169.389         | 156.245        | 1                | 0.5000          | NO TREND         | 100.00%      |
| 1,4-Dioxane                           | MW-13-25       | 04/02/2013 | 12/06/2019 | 4                  | µg/L                | 15              | 3              | 25             | 6.2274             | 11.933          | 10.189         | -29              | 0.0819          | DECREASING TREND | 93.75%       |
| 1,4-Dioxane                           | MW-13-29       | 04/23/2013 | 06/05/2019 | 21                 | µg/L                | 13              | 15             | 130            | 30.2742            | 31.769          | 25.936         | -45              | 0.0036          | DECREASING TREND | 100.00%      |
| 1,4-Dioxane                           | MW-13-34       | 08/20/2013 | 12/05/2019 | 105                | µg/L                | 18              | 17             | 105            | 22.4395            | 67.000          | 62.527         | 96               | 0.0002          | INCREASING TREND | 100.00%      |
| 1,4-Dioxane                           | MW-13-41       | 12/17/2013 | 06/10/2019 | 23                 | µg/L                | 12              | 11             | 23             | 4.0899             | 15.000          | 14.513         | 17               | 0.1291          | NO TREND         | 100.00%      |
| 1,4-Dioxane                           | MW-13-43       | 12/13/2013 | 12/04/2019 | 320                | µg/L                | 19              | 220            | 360            | 39.9827            | 289.790         | 287.170        | 15               | 0.3115          | NO TREND         | 100.00%      |
| 1,4-Dioxane                           | MW-13-45       | 12/13/2013 | 12/03/2019 | 41                 | µg/L                | 18              | 24             | 56             | 10.5243            | 44.060          | 42.651         | 63               | 0.0093          | INCREASING TREND | 94.74%       |
| 1,4-Dioxane                           | MW-13-48       | 12/19/2013 | 12/06/2019 | 162                | µg/L                | 18              | 34             | 380            | 91.1793            | 172.611         | 146.647        | 34               | 0.1055          | NO TREND         | 100.00%      |
| 1,4-Dioxane                           | MW-14-56       | 09/18/2014 | 06/13/2019 | 10                 | µg/L                | 14              | 6              | 14             | 2.2001             | 8.070           | 7.836          | 44               | 0.0074          | INCREASING TREND | 87.50%       |
| 1,4-Dioxane                           | MW-14-61       | 09/19/2014 | 12/06/2019 | 140                | µg/L                | 9               | 6              | 151            | 67.0673            | 55.440          | 23.145         | 17               | 0.0490          | INCREASING TREND | 81.82%       |
| 1,4-Dioxane                           | MW-15-72       | 03/16/2016 | 12/05/2019 | 310                | µg/L                | 13              | 30             | 320            | 86.3738            | 229.460         | 201.791        | 4                | 0.4271          | NO TREND         | 100.00%      |
| 1,4-Dioxane                           | MW-15-73       | 03/15/2016 | 06/13/2019 | 9                  | µg/L                | 7               | 4              | 11             | 2.4976             | 6.710           | 6.349          | 10               | 0.0935          | INCREASING TREND | 77.78%       |

Table 7  
Mann-Kendall Trend Test Results  
2019 Annual Groundwater Monitoring Report  
RACER Trust Plants 2, 3, and 6  
Lansing, Michigan

| Analyte     | Well ID  | Start Date | End Date   | Most Recent Result | Recent Result Units | Sample Size (n) | Minimum Result | Maximum Result | Standard Deviation | Arithmetic Mean | Geometric Mean | Sum of Trend (S) | Probability (p) | Result           | % of Detects |
|-------------|----------|------------|------------|--------------------|---------------------|-----------------|----------------|----------------|--------------------|-----------------|----------------|------------------|-----------------|------------------|--------------|
| 1,4-Dioxane | MW-16-80 | 06/28/2016 | 12/06/2019 | 24                 | µg/L                | 8               | 21             | 46             | 7.9631             | 27.630          | 26.826         | -8               | 0.1990          | NO TREND         | 88.89%       |
| 1,4-Dioxane | MW-16-81 | 06/28/2016 | 12/06/2019 | 2500               | µg/L                | 14              | 100            | 3200           | 949.7903           | 1,093.570       | 711.543        | 63               | 0.0003          | INCREASING TREND | 100.00%      |
| 1,4-Dioxane | MW-16-84 | 09/23/2016 | 12/03/2019 | 67                 | µg/L                | 13              | 29             | 77             | 13.1237            | 51.310          | 49.695         | 40               | 0.0085          | INCREASING TREND | 100.00%      |
| 1,4-Dioxane | MW-16-85 | 12/20/2016 | 12/03/2019 | 17                 | µg/L                | 7               | 1              | 17             | 6.1644             | 8.000           | 5.771          | 11               | 0.0680          | INCREASING TREND | 100.00%      |
| 1,4-Dioxane | MW-17-86 | 04/25/2017 | 12/03/2019 | 90                 | µg/L                | 6               | 11             | 90             | 30.8286            | 54.000          | 43.846         | 14               | 0.0049          | INCREASING TREND | 100.00%      |
| 1,4-Dioxane | PW-14-01 | 09/19/2014 | 12/05/2019 | 109                | µg/L                | 18              | 12             | 530            | 189.7652           | 278.390         | 189.923        | -49              | 0.0341          | DECREASING TREND | 100.00%      |
| 1,4-Dioxane | PW-14-02 | 09/18/2014 | 12/04/2019 | 260                | µg/L                | 13              | 103            | 580            | 130.7108           | 284.850         | 260.613        | -5               | 0.4026          | NO TREND         | 100.00%      |
| 1,4-Dioxane | PW-14-03 | 09/18/2014 | 12/05/2019 | 43                 | µg/L                | 13              | 43             | 530            | 156.4941           | 314.692         | 258.322        | -2               | 0.4757          | NO TREND         | 100.00%      |

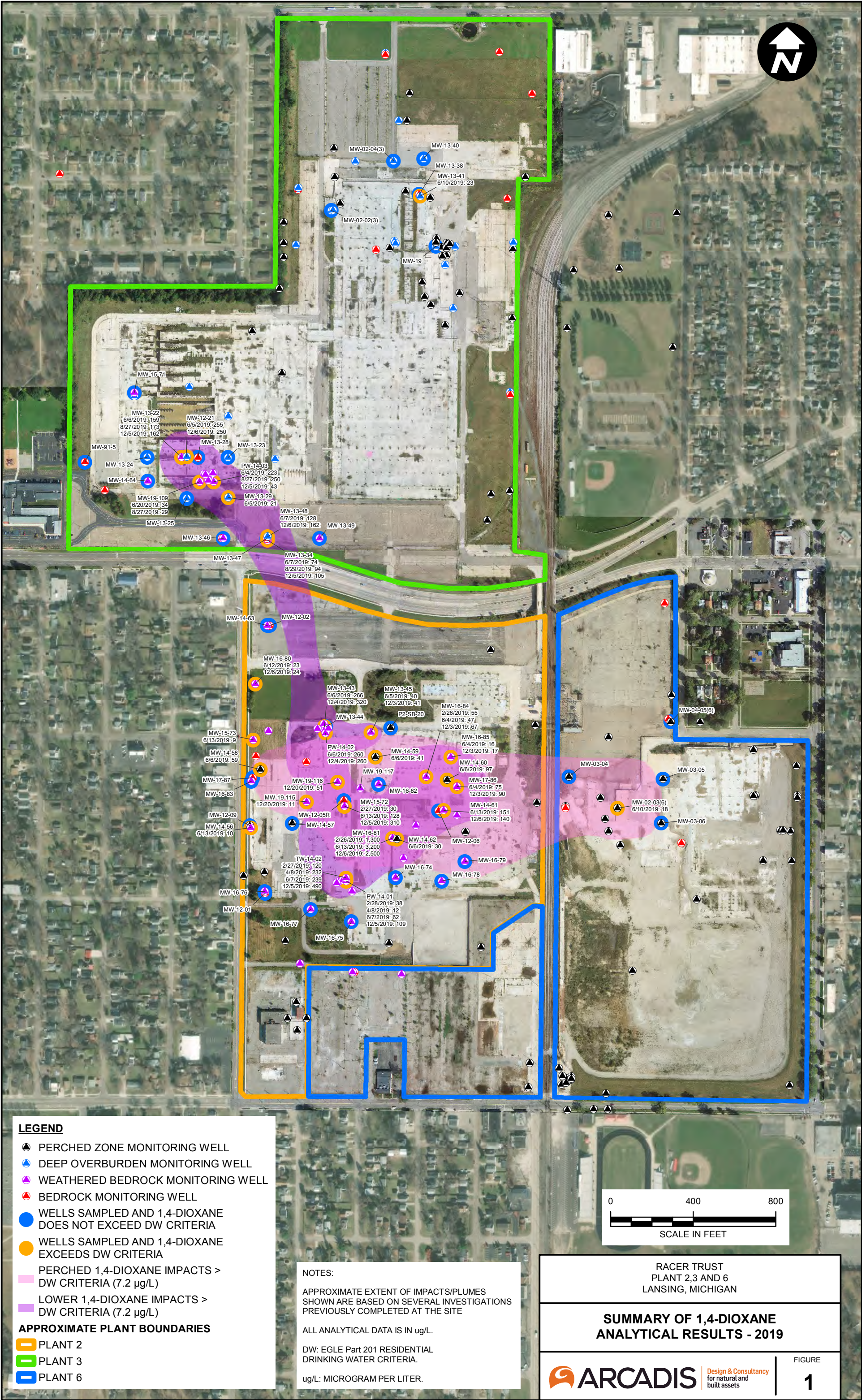
**Notes:**  
mg/L = milligrams per liter  
n = number of samples  
p = Indication of statistical significance of trend direction. Concentration trends considered statistically significant at p-values less than 0.1 (90% confidence level).  
RACER = Revitalizing Auto Communities Environmental Response  
% = percent  
< = less than  
S = Mann-Kendall test statistic. Sign indicates trend direction.  
µg/L = micrograms per liter

# FIGURES



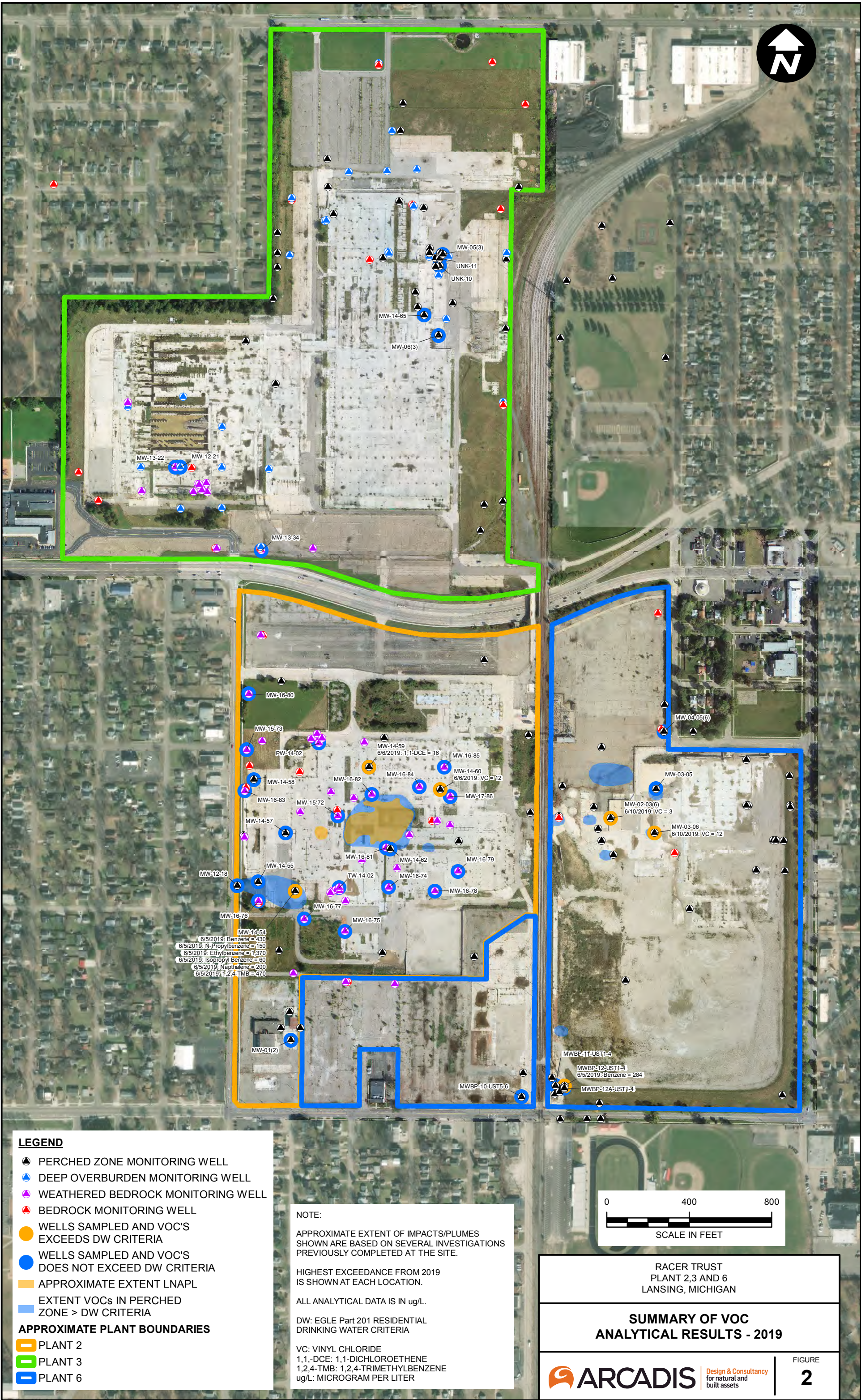


CITY: Novi DIV: ENV DB: TRY PIC: J.Barrett PM: R.Christensen TM: A.Villhauer TR: PROJECT NUMBER: 30042872 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl  
Z:\GISProjects\ENV\RACER\_BuffaloLansing\MXDs\Semi-Annual Report Figures\2019\_Summary\Figure 1 - SemiAnnualFigure\_1\_4-DIOXANE.mxd PLOTTED: 4/30/2020 6:20:07 AM BY: ebeyer

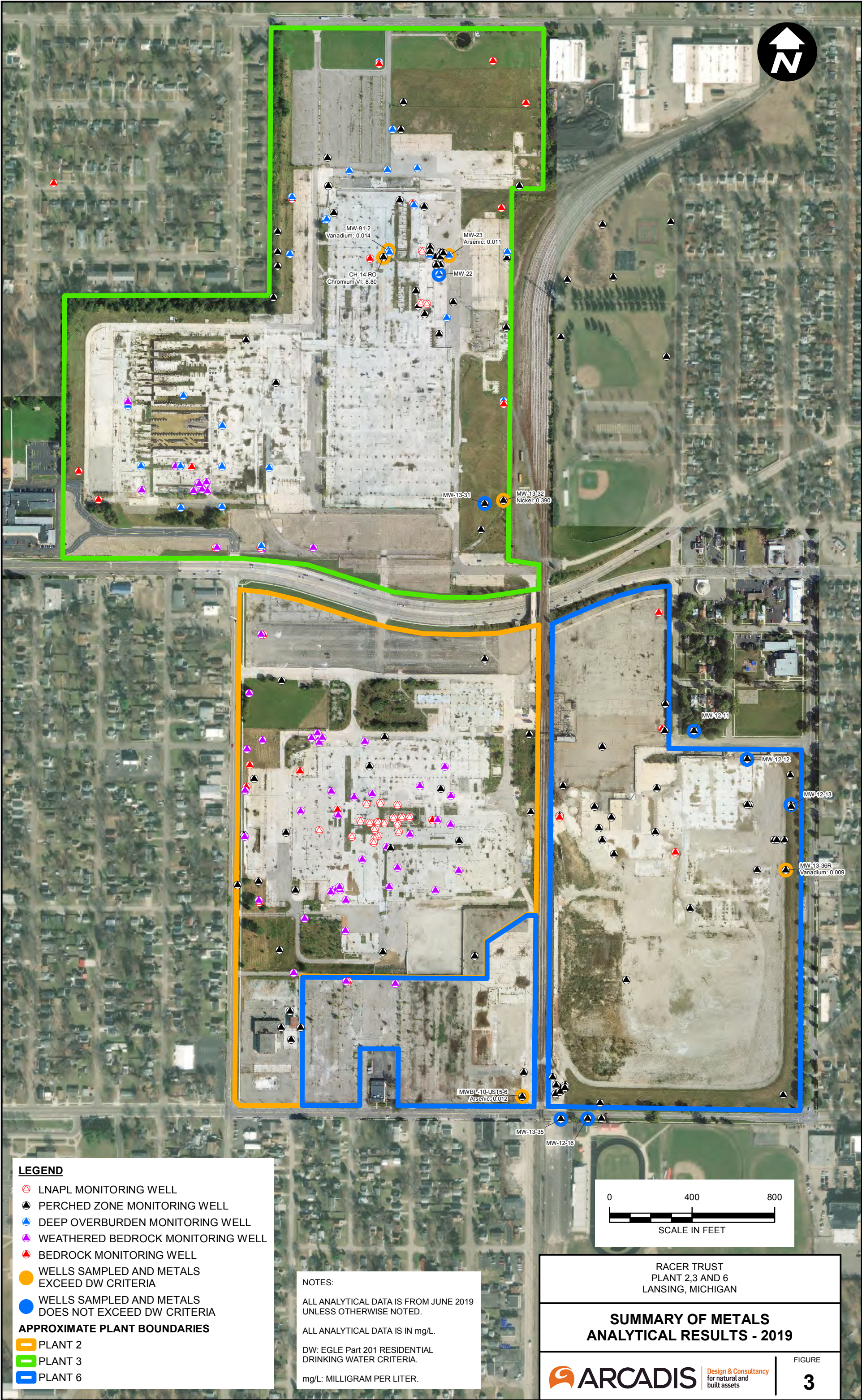




CITY: Novi DIV: ENV DB: TRY PIC: J.Barrett PM: R.Christensen TM: A.Villhauer TR: PROJECT NUMBER: 30042872 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl  
Z:\GISProjects\ENV\RACER\_BuffaloLansing\MXD\Semi-Annual Report Figures\2019\_Summary\Figure 2 - SemiAnnualFigure\_VOC's.mxd PLOTTED: 4/30/2020 6:22:11 AM BY: ebeyer

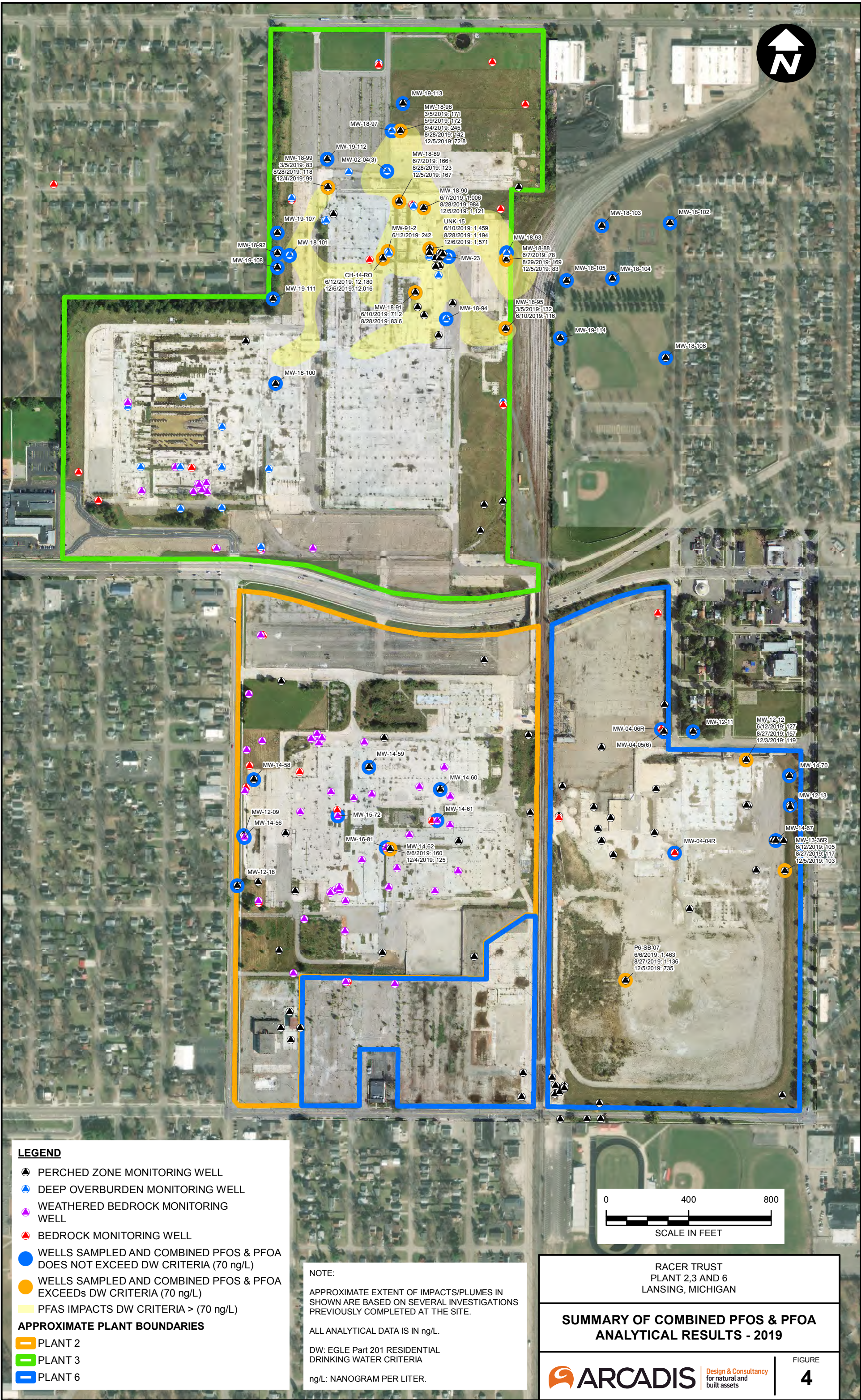






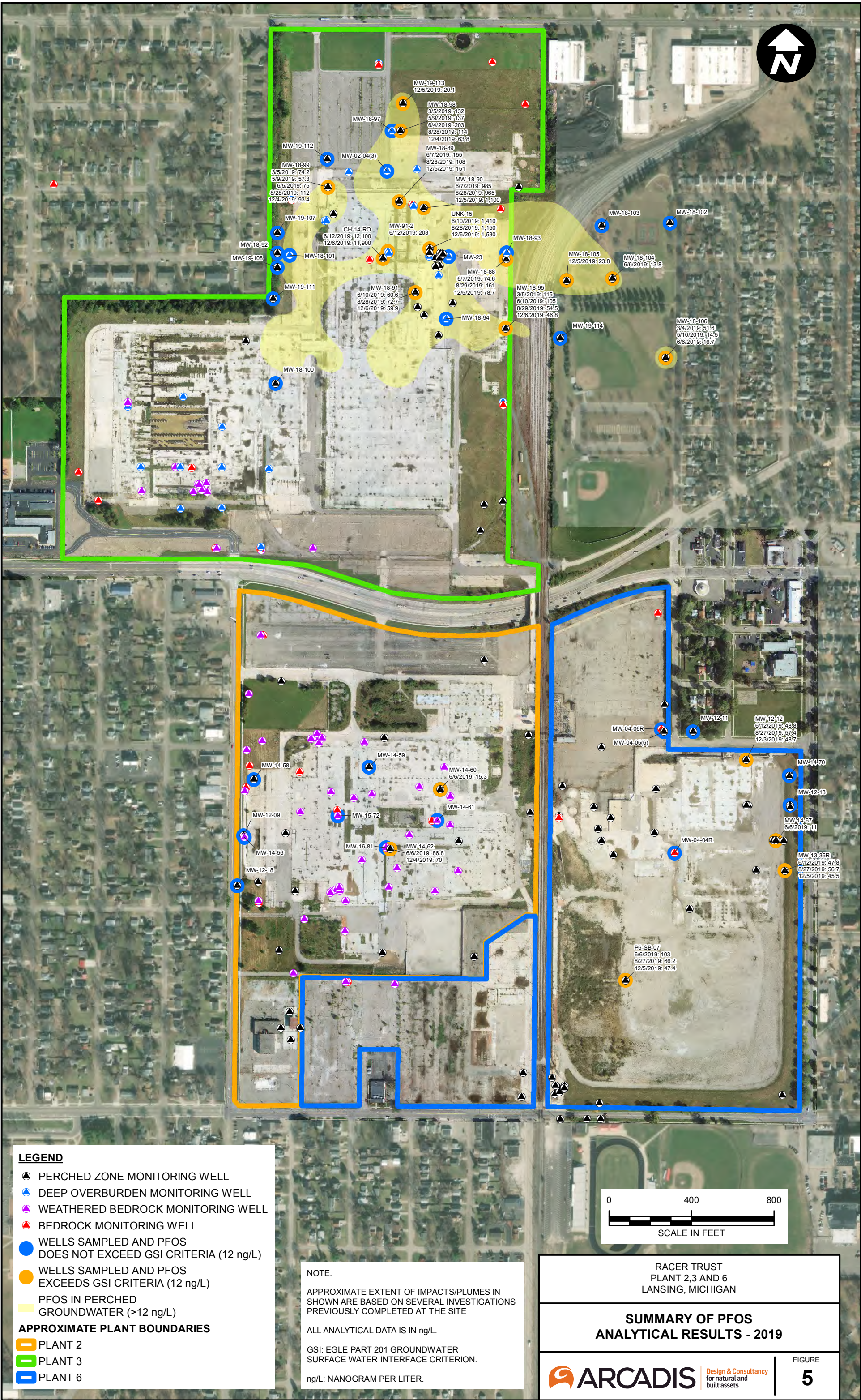


CITY: Novi DIV: ENV DB: TRY PIC: J.Barrett PM: R.Christensen TM: A.Villhauer TR: PROJECT NUMBER: 30042872 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl Z:\GISProjects\ENV\RACER\_BuffaloLansing\MXDs\Semi-Annual Report Figures\2019\_Summary\Figure 4 - SemiAnnualFigure\_COMBINEDPFOS\_PFOA.mxd PLOTTED: 4/30/2020 6:23:41 AM BY: ebeyer



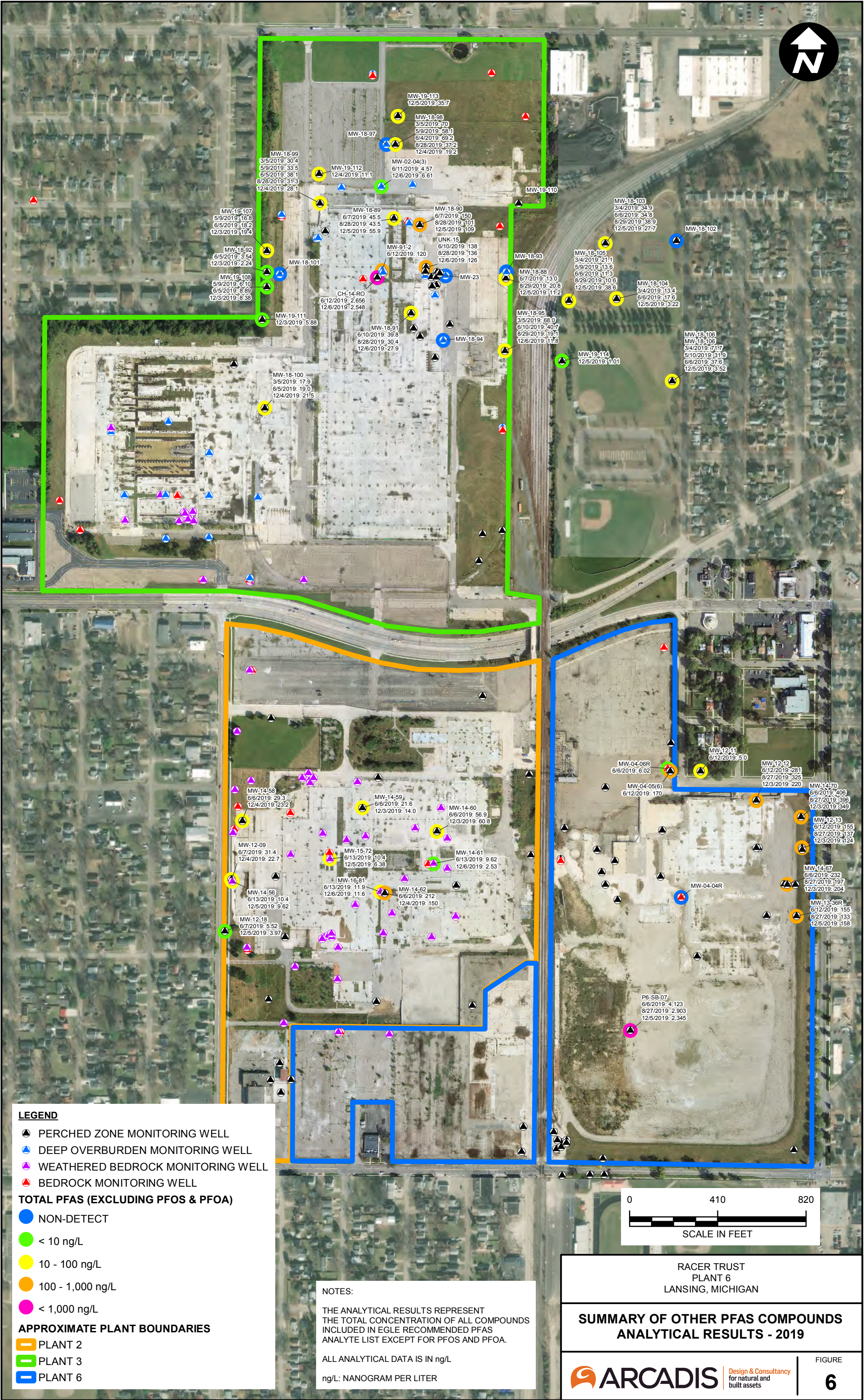


CITY: Novi DIV: ENV DB: TRY PIC: J.Barrett PM: R.Christensen TM: A.Villhauer TR: PROJECT NUMBER: 30042872 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl  
Z:\GISProjects\ENV\RACER\_BuffaloLansing\MXDs\Semi-Annual Report Figures\2019\_Summary\Figure 5 - SemiAnnualFigure\_PFOS.mxd PLOTTED: 4/30/2020 6:24:10 AM BY: ebeyer



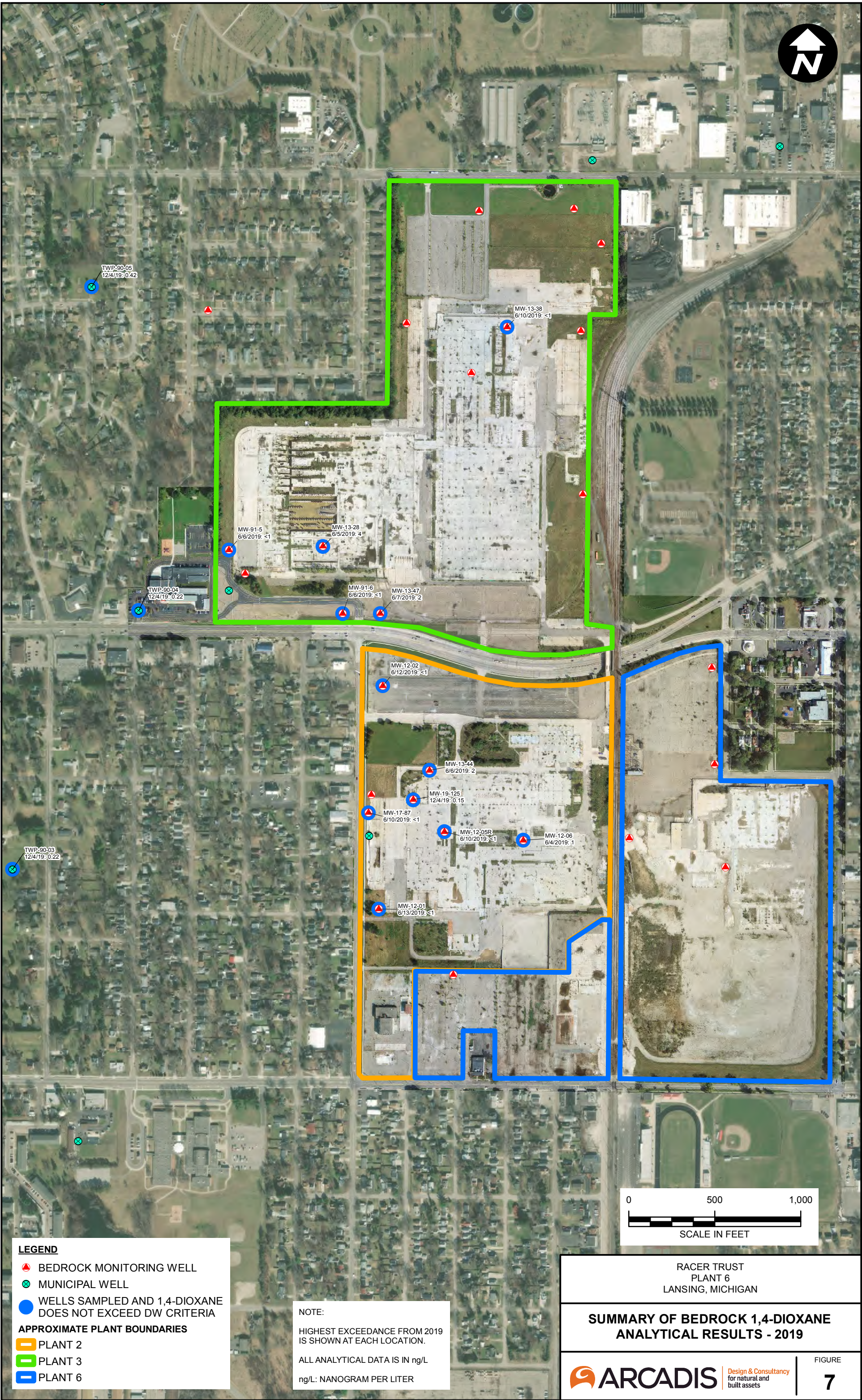


CITY: Novi DIV: ENV DB: TRY PIC: J.Barrett PM: R.Christensen TM: A.Villhauer TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl Z:\GISProjects\ENV\RACER\_Trust\Buffs\AnnualReportFigures2019\_Summary\Figure 6 - SemiAnnualFigure\_OTHER\_PFAS.mxd PLOTTED: 4/30/2020 6:24:41 AM BY: ebeyer





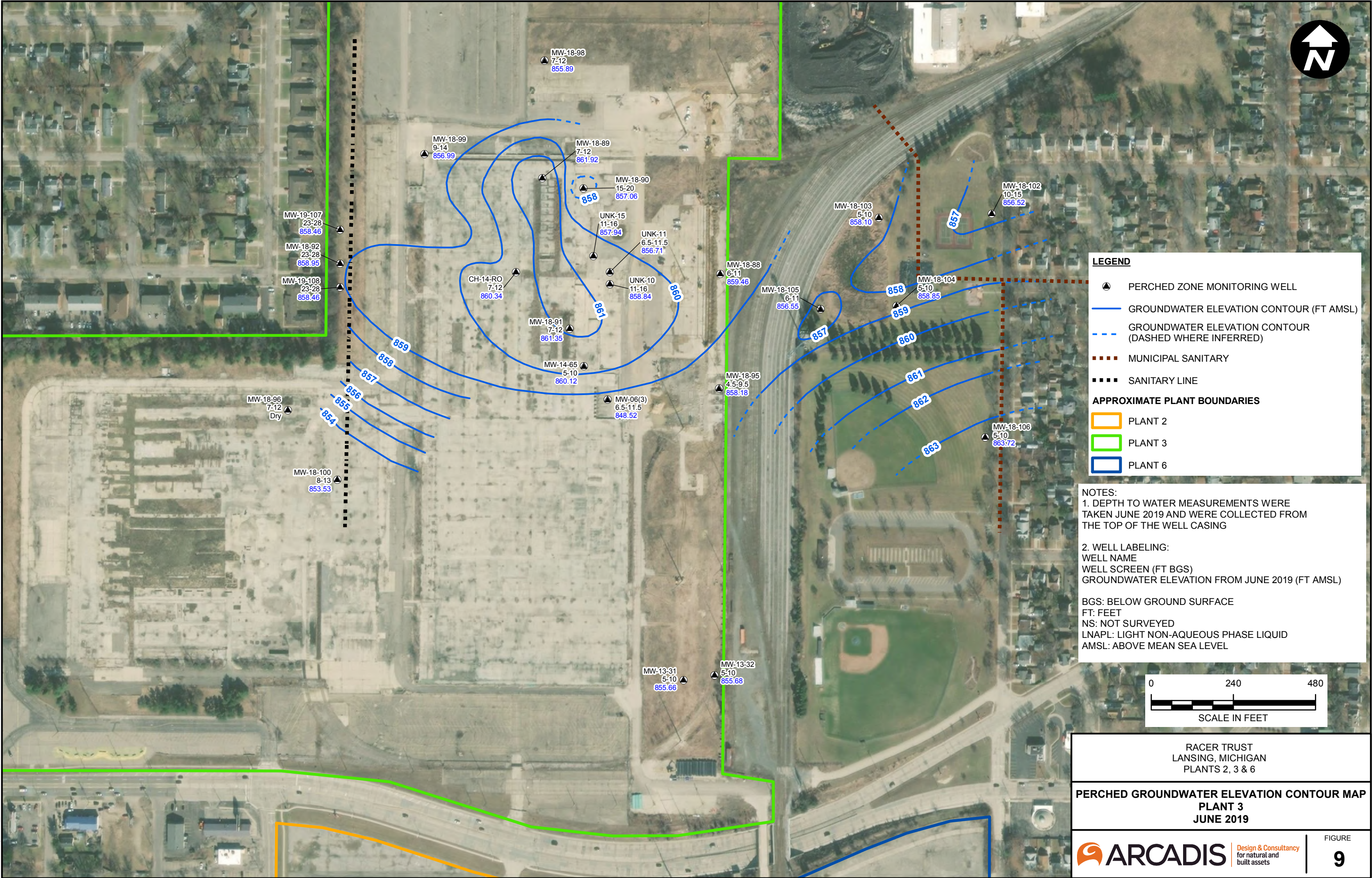
CITY: Novi DIV: ENV DB: TRY PIC: J.Barrett PM: R.Christensen TM: A.Villhauer TR: PROJECT NUMBER: COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl Z:\GISProjects\ENV\RACER\_BuffaloLansing\MXDs\Semi-Annual Report Figures\2019\_Summary\Figure 7 - SemiAnnualFigure\_BEDROCK\_1,4-DIOXANE.mxd PLOTTED: 4/30/2020 6:25:23 AM BY: ebyer



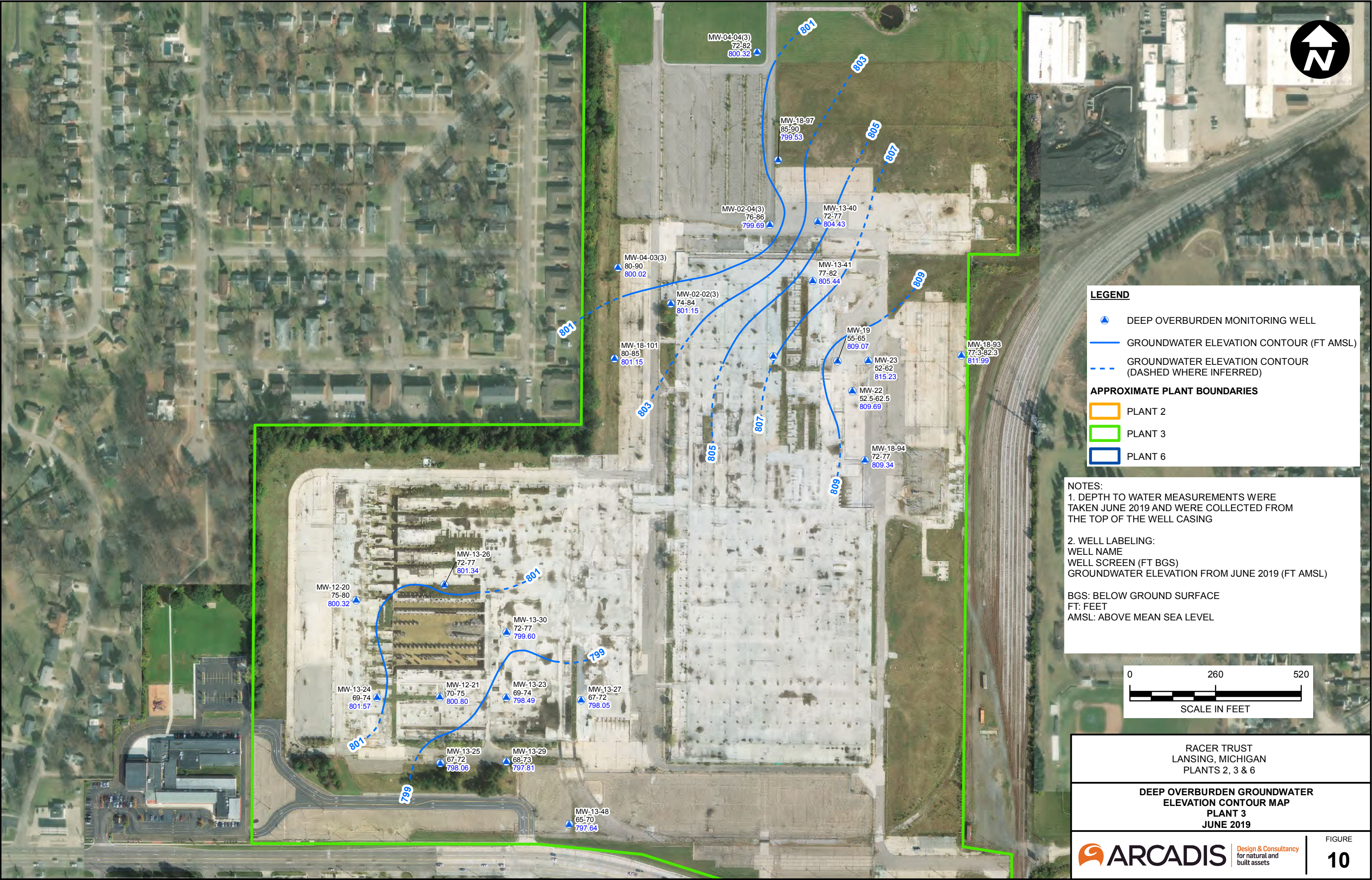






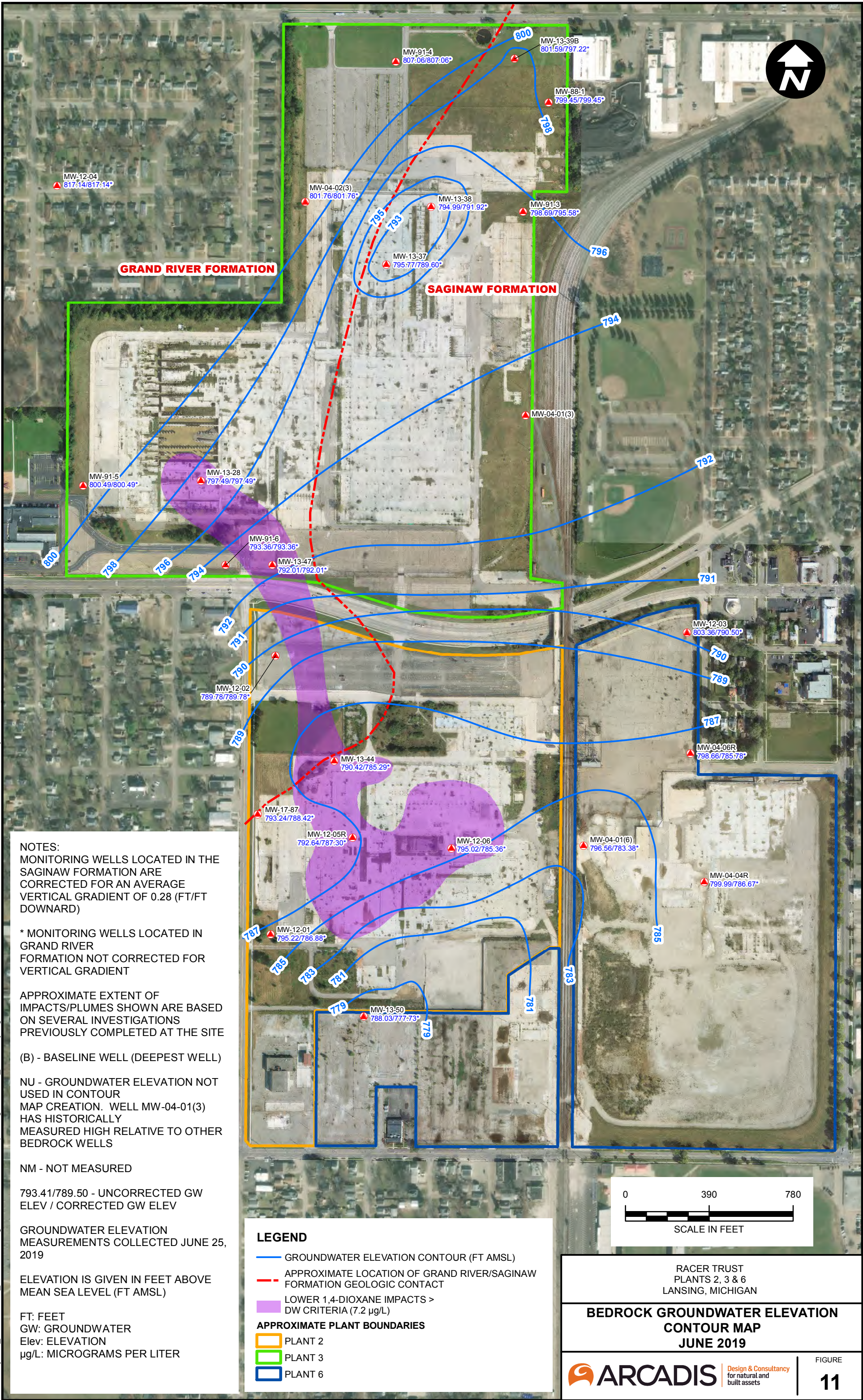




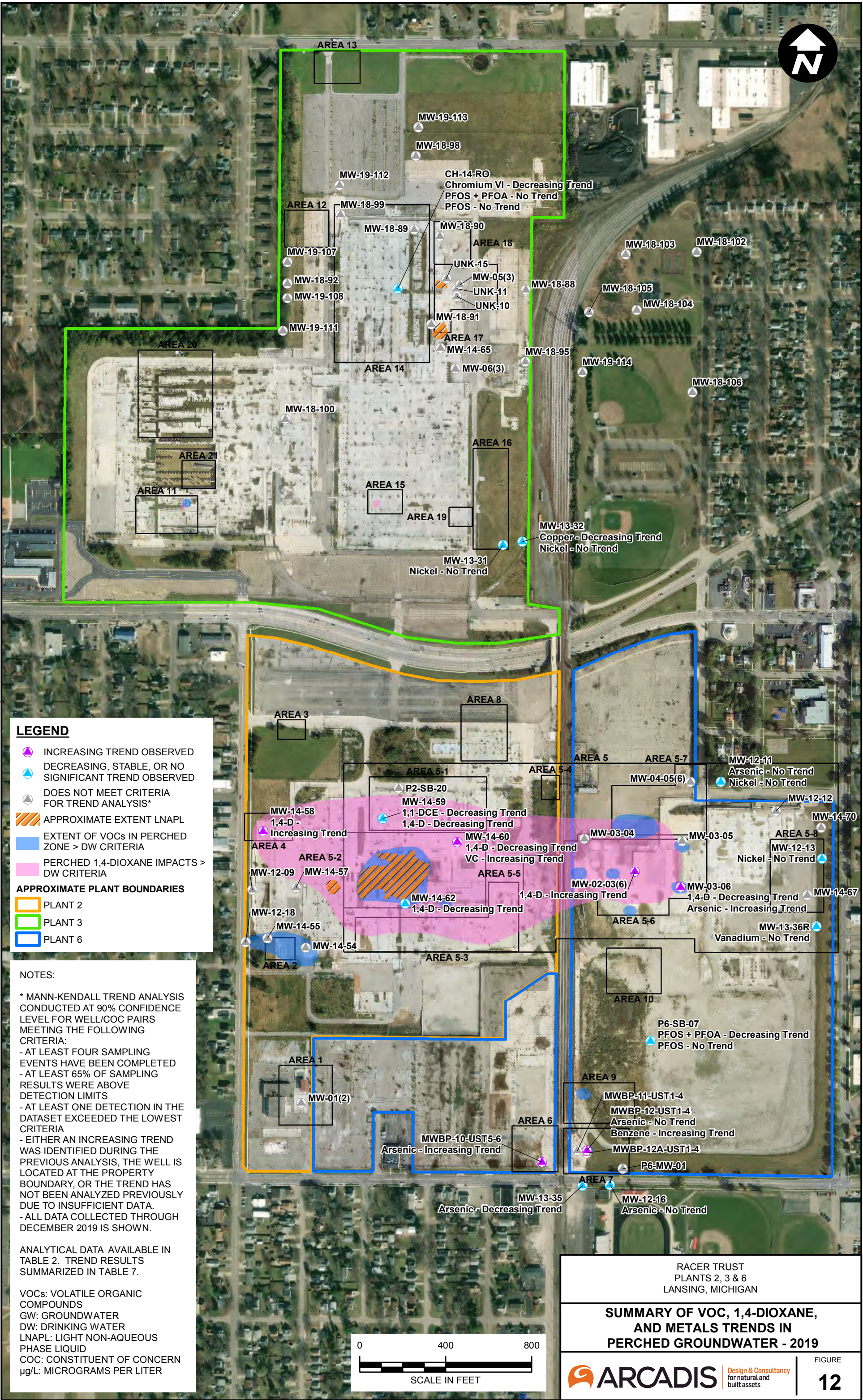




CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: J. Barrett PM: R. Christensen TM: A. Villhauer TR: PROJECT NUMBER: 30042872 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl  
Z:\GIS\Projects\ENV\RACER\_BuffaloLansing\MXD\Semi-Annual Report Figures\Figure 11 - BR GW Contour.mxd PLOTTED: 4/29/2020 1:40:15 PM BY: ebeyer









CITY: KNOXVILLE DIV: ENV DB: A.SMITH PIC: J. Barrett PM: R. Christensen TM: A. Villhauer TR: PROJECT NUMBER: 30042872 COORDINATE SYSTEM: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl  
Z:\GISProjects\ENV\RACER\_BuffaloLansing\MXD\Annual Report Figures\2019\_Summary\Figure 13 - Deep OB Weathered BR Trends.mxd PLOTTED: 4/28/2020 11:24:42 AM BY: ebeyer

LEGEND

- INCREASING TREND OBSERVED
- DECREASING, STABLE, OR NO SIGNIFICANT TREND OBSERVED
- DOES NOT MEET CRITERIA FOR TREND ANALYSIS\*
- LOWER 1,4-DIOXANE IMPACTS > DW CRITERIA (7.2 µg/L)

APPROXIMATE PLANT BOUNDARIES

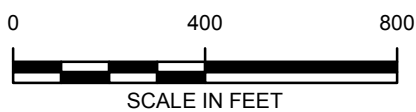
- PLANT 2
- PLANT 3
- PLANT 6

NOTES:

\* MANN-KENDALL TREND ANALYSIS CONDUCTED AT 90% CONFIDENCE LEVEL FOR WELL/COC PAIRS MEETING THE FOLLOWING CRITERIA:  
- AT LEAST FOUR SAMPLING EVENTS HAVE BEEN COMPLETED  
- AT LEAST 65% OF SAMPLING RESULTS WERE ABOVE DETECTION LIMITS  
- AT LEAST ONE DETECTION IN THE DATASET EXCEEDED THE LOWEST CRITERIA  
- EITHER AN INCREASING TREND WAS IDENTIFIED DURING THE PREVIOUS ANALYSIS, THE WELL IS LOCATED AT THE PROPERTY BOUNDARY, OR THE TREND HAS NOT BEEN ANALYZED PREVIOUSLY DUE TO INSUFFICIENT DATA.  
- ALL DATA COLLECTED THROUGH DECEMBER 2019 IS SHOWN.

ANALYTICAL DATA AVAILABLE IN TABLE 2. TREND RESULTS SUMMARIZED IN TABLE 7.

DW: DRINKING WATER  
COC: CONSTITUENT OF CONCERN  
µg/L: MICROGRAMS PER LITER



RACER TRUST  
PLANTS 2, 3 & 6  
LANSING, MICHIGAN

**SUMMARY OF 1,4-DIOXANE TRENDS  
IN DEEP OVERBURDEN AND  
WEATHERED BEDROCK - 2019**

**ARCADIS** Design & Consultancy  
for natural and  
built assets

FIGURE  
**13**



# APPENDIX A

Lansing Township Municipal Well Locations and Data  
(on attached CD)



# APPENDIX C

Low-Flow Logs  
(On attached CD)





## 2019-02-28, TW-16-01, TW-16-01

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-02-28 10:44:48 EST by Billy Cobern    |
| Updated                                                                                           | 2019-02-28 11:40:57 EST by Christine Gregg |
| Location                                                                                          | 42.73680031, -84.58563941                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-02-28                                 |
| Well Identification                                                                               | TW-16-01                                   |
| Well ID                                                                                           | TW-16-01                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | M Cloudy 20's                              |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 62.9          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 77.8          |
| Water Column                                                                                                                                                                                                                                              | 14.9          |
| Gallons in Well                                                                                                                                                                                                                                           | 2.42          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 75            |
| Purge Start                                                                                                                                                                                                                                               | 10:35         |

### @10:35, DTW:62.9, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 10:35                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 62.9                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @10:35, DTW:62.9, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:40, DTW:62.9, pH:7.15, temp:8.4, cond:2.14, turb:15, DO:3.43, redox:82.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 62.9  |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.15  |

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 2.14                                                                         |
| Turbidity (NTU)               | 15                                                                           |
| Dissolved Oxygen (mg/L)       | 3.43                                                                         |
| Temperature (Degrees Celsius) | 8.4                                                                          |
| Redox (ORP mV)                | 82.1                                                                         |
| parameters                    | @10:40, DTW:62.9, pH:7.15, temp:8.4, cond:2.14, turb:15, DO:3.43, redox:82.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@10:45, DTW:62.9, pH:7.12, temp:8.5, cond:2.16, turb:17.7, DO:3, redox:82.4**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 10:45                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 100                                                                         |
| Depth to Water (ft)              | 62.9                                                                        |
| Milliliters Purged (total)       | 1000                                                                        |
| pH                               | 7.12                                                                        |
| Conductivity (mS/cm)             | 2.16                                                                        |
| Turbidity (NTU)                  | 17.7                                                                        |
| Dissolved Oxygen (mg/L)          | 3                                                                           |
| Temperature (Degrees Celsius)    | 8.5                                                                         |
| Redox (ORP mV)                   | 82.4                                                                        |
| parameters                       | @10:45, DTW:62.9, pH:7.12, temp:8.5, cond:2.16, turb:17.7, DO:3, redox:82.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@10:50, DTW:62.9, pH:7.11, temp:8.3, cond:2.14, turb:13.9, DO:2.99, redox:82.6**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 10:50                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 62.9                                                                           |
| Milliliters Purged (total)       | 1500                                                                           |
| pH                               | 7.11                                                                           |
| Conductivity (mS/cm)             | 2.14                                                                           |
| Turbidity (NTU)                  | 13.9                                                                           |
| Dissolved Oxygen (mg/L)          | 2.99                                                                           |
| Temperature (Degrees Celsius)    | 8.3                                                                            |
| Redox (ORP mV)                   | 82.6                                                                           |
| parameters                       | @10:50, DTW:62.9, pH:7.11, temp:8.3, cond:2.14, turb:13.9, DO:2.99, redox:82.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@10:55, DTW:62.9, pH:7.11, temp:8.5, cond:2.14, turb:12.1, DO:3.03, redox:82.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:55 |
| Minutes Elapsed between readings | 5     |



|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                            |
| Depth to Water (ft)           | 62.9                                                                           |
| Milliliters Purged (total)    | 2000                                                                           |
| pH                            | 7.11                                                                           |
| Conductivity (mS/cm)          | 2.14                                                                           |
| Turbidity (NTU)               | 12.1                                                                           |
| Dissolved Oxygen (mg/L)       | 3.03                                                                           |
| Temperature (Degrees Celsius) | 8.5                                                                            |
| Redox (ORP mV)                | 82.9                                                                           |
| parameters                    | @10:55, DTW:62.9, pH:7.11, temp:8.5, cond:2.14, turb:12.1, DO:3.03, redox:82.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:00, DTW:62.9, pH:7.12, temp:8.5, cond:2.15, turb:9.34, DO:3.12, redox:83**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 11:00                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 62.9                                                                         |
| Milliliters Purged (total)       | 2500                                                                         |
| pH                               | 7.12                                                                         |
| Conductivity (mS/cm)             | 2.15                                                                         |
| Turbidity (NTU)                  | 9.34                                                                         |
| Dissolved Oxygen (mg/L)          | 3.12                                                                         |
| Temperature (Degrees Celsius)    | 8.5                                                                          |
| Redox (ORP mV)                   | 83                                                                           |
| parameters                       | @11:00, DTW:62.9, pH:7.12, temp:8.5, cond:2.15, turb:9.34, DO:3.12, redox:83 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:05, DTW:62.9, pH:7.13, temp:8.4, cond:2.16, turb:8.67, DO:3.15, redox:83.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:05                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 62.9                                                                           |
| Milliliters Purged (total)       | 300                                                                            |
| pH                               | 7.13                                                                           |
| Conductivity (mS/cm)             | 2.16                                                                           |
| Turbidity (NTU)                  | 8.67                                                                           |
| Dissolved Oxygen (mg/L)          | 3.15                                                                           |
| Temperature (Degrees Celsius)    | 8.4                                                                            |
| Redox (ORP mV)                   | 83.1                                                                           |
| parameters                       | @11:05, DTW:62.9, pH:7.13, temp:8.4, cond:2.16, turb:8.67, DO:3.15, redox:83.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:10, DTW:62.9, pH:7.13, temp:8.9, cond:2.16, turb:9.15, DO:3.19, redox:83.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:10                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 62.9                                                                           |
| Milliliters Purged (total)       | 3500                                                                           |
| pH                               | 7.13                                                                           |
| Conductivity (mS/cm)             | 2.16                                                                           |
| Turbidity (NTU)                  | 9.15                                                                           |
| Dissolved Oxygen (mg/L)          | 3.19                                                                           |
| Temperature (Degrees Celsius)    | 8.9                                                                            |
| Redox (ORP mV)                   | 83.1                                                                           |
| parameters                       | @11:10, DTW:62.9, pH:7.13, temp:8.9, cond:2.16, turb:9.15, DO:3.19, redox:83.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 11:10       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 3500        |
| Well Volumes Purged           | 0.38        |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:10 |
| Color         | Clear |
| Notable odors | No    |

### 1,4 Dioxane, Nitrate, Phosphorus, TKN

|                      |                                       |
|----------------------|---------------------------------------|
| Constituent Sampled  | 1,4 Dioxane, Nitrate, Phosphorus, TKN |
| Number of Containers | 5                                     |

### Well Information

|                          |                                                     |
|--------------------------|-----------------------------------------------------|
| Well Location            | On site Plant 2                                     |
| Condition of Well        | Good                                                |
| Well Locked at Arrival   | No                                                  |
| Well Locked at Departure | No                                                  |
| Comments                 | Well under pressure, DTW measurements are difficult |



Signature

A handwritten signature in black ink, appearing to be 'Zunh' or similar, with a long horizontal stroke at the end.

Signed 2019-02-28 15:47:37 UTC

---

## 2019-04-08, TW-16-01, TW-16-01

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-04-08 14:08:02 EDT by Daniel Stockard |
| Updated                                                                                           | 2019-04-08 15:11:19 EDT by Christine Gregg |
| Location                                                                                          | 42.73707919, -84.58775539                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Daniel Stockard                            |
| Date                                                                                              | 2019-04-08                                 |
| Well Identification                                                                               | TW-16-01                                   |
| Well ID                                                                                           | TW-16-01                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Sunny, 60s                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 62            |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 75            |
| Water Column                                                                                                                                                                                                                                              | 13            |
| Gallons in Well                                                                                                                                                                                                                                           | 2.11          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Grab          |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 72            |
| Purge Start                                                                                                                                                                                                                                               | 14:00         |

### @14:05, DTW:62, pH:6.94, temp:16.1, cond:2.291, turb:971, DO:3.04, redox:75.8

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Reading Time                  | 14:05                                                                         |
| Rate (mL/min)                 | 200                                                                           |
| Depth to Water (ft)           | 62                                                                            |
| pH                            | 6.94                                                                          |
| Conductivity (mS/cm)          | 2.291                                                                         |
| Turbidity (NTU)               | 971                                                                           |
| Dissolved Oxygen (mg/L)       | 3.04                                                                          |
| Temperature (Degrees Celsius) | 16.1                                                                          |
| Redox (ORP mV)                | 75.8                                                                          |
| parameters                    | @14:05, DTW:62, pH:6.94, temp:16.1, cond:2.291, turb:971, DO:3.04, redox:75.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:10, DTW:62.4, pH:6.97, temp:15.9, cond:2.288, turb:775, DO:3.47, redox:75.9

|              |       |
|--------------|-------|
| Reading Time | 14:10 |
|--------------|-------|



|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 62.4                                                                            |
| pH                               | 6.97                                                                            |
| Conductivity (mS/cm)             | 2.288                                                                           |
| Turbidity (NTU)                  | 775                                                                             |
| Dissolved Oxygen (mg/L)          | 3.47                                                                            |
| Temperature (Degrees Celsius)    | 15.9                                                                            |
| Redox (ORP mV)                   | 75.9                                                                            |
| parameters                       | @14:10, DTW:62.4, pH:6.97, temp:15.9, cond:2.288, turb:775, DO:3.47, redox:75.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:15, DTW:63.3, pH:7.19, temp:15.4, cond:2.284, turb:268, DO:6.55, redox:80.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 63.3                                                                            |
| pH                               | 7.19                                                                            |
| Conductivity (mS/cm)             | 2.284                                                                           |
| Turbidity (NTU)                  | 268                                                                             |
| Dissolved Oxygen (mg/L)          | 6.55                                                                            |
| Temperature (Degrees Celsius)    | 15.4                                                                            |
| Redox (ORP mV)                   | 80.8                                                                            |
| parameters                       | @14:15, DTW:63.3, pH:7.19, temp:15.4, cond:2.284, turb:268, DO:6.55, redox:80.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:20, DTW:63.7, pH:7.21, temp:15.3, cond:2.275, turb:219, DO:6.87, redox:84.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:20                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 63.7                                                                            |
| pH                               | 7.21                                                                            |
| Conductivity (mS/cm)             | 2.275                                                                           |
| Turbidity (NTU)                  | 219                                                                             |
| Dissolved Oxygen (mg/L)          | 6.87                                                                            |
| Temperature (Degrees Celsius)    | 15.3                                                                            |
| Redox (ORP mV)                   | 84.1                                                                            |
| parameters                       | @14:20, DTW:63.7, pH:7.21, temp:15.3, cond:2.275, turb:219, DO:6.87, redox:84.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:25, DTW:65.5, pH:7.2, temp:15.3, cond:2.264, turb:269, DO:6.6, redox:83.8**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:25                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 65.5                                                                          |
| pH                               | 7.2                                                                           |
| Conductivity (mS/cm)             | 2.264                                                                         |
| Turbidity (NTU)                  | 269                                                                           |
| Dissolved Oxygen (mg/L)          | 6.6                                                                           |
| Temperature (Degrees Celsius)    | 15.3                                                                          |
| Redox (ORP mV)                   | 83.8                                                                          |
| parameters                       | @14:25, DTW:65.5, pH:7.2, temp:15.3, cond:2.264, turb:269, DO:6.6, redox:83.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:30, DTW:65.8, pH:7.17, temp:15.3, cond:2.263, turb:281, DO:6.24, redox:81.9

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.8                                                                            |
| pH                               | 7.17                                                                            |
| Conductivity (mS/cm)             | 2.263                                                                           |
| Turbidity (NTU)                  | 281                                                                             |
| Dissolved Oxygen (mg/L)          | 6.24                                                                            |
| Temperature (Degrees Celsius)    | 15.3                                                                            |
| Redox (ORP mV)                   | 81.9                                                                            |
| parameters                       | @14:30, DTW:65.8, pH:7.17, temp:15.3, cond:2.263, turb:281, DO:6.24, redox:81.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 14:35   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 1.5     |
| Well Volumes Purged           | 0.71    |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:35 |
| Color         | None  |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information



|                          |      |
|--------------------------|------|
| Well Location            | P2   |
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |
| Signature                |      |

A handwritten signature in black ink, appearing to read "David H. Hester". The signature is written in a cursive style with a large initial "D" and a stylized "H".

Signed 2019-04-08 15:11:18 EDT

## 2019-06-12, UNK-10, UNK-10

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 15:30:34 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-12 16:00:15 EDT by Christine Gregg |
| Location                                                                                          | 42.74508725, -84.58390108                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-12                                 |
| Well Identification                                                                               | UNK-10                                     |
| Well ID                                                                                           | UNK-10                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Cloudy                                     |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 4             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 0.24          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 11.4          |
| Water Column                                                                                                                                                                                                                                               | 11.16         |
| Gallons in Well                                                                                                                                                                                                                                            | 7.25          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                   | 8.9           |
| Purge Start                                                                                                                                                                                                                                                | 15:30         |

### @15:35, DTW:0.33, pH:7.38, temp:15.8, cond:0.198, turb:8.44, DO:0.15, redox:-82.9

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 15:35                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 0.33                                                                              |
| Milliliters Purged (total)    | 1000                                                                              |
| pH                            | 7.38                                                                              |
| Conductivity (mS/cm)          | 0.198                                                                             |
| Turbidity (NTU)               | 8.44                                                                              |
| Dissolved Oxygen (mg/L)       | 0.15                                                                              |
| Temperature (Degrees Celsius) | 15.8                                                                              |
| Redox (ORP mV)                | -82.9                                                                             |
| parameters                    | @15:35, DTW:0.33, pH:7.38, temp:15.8, cond:0.198, turb:8.44, DO:0.15, redox:-82.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit



**@15:40, DTW:0.33, pH:7.39, temp:15.6, cond:0.195, turb:3.9, DO:0.19, redox:-76**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:40                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 0.33                                                                           |
| Milliliters Purged (total)       | 2000                                                                           |
| pH                               | 7.39                                                                           |
| Conductivity (mS/cm)             | 0.195                                                                          |
| Turbidity (NTU)                  | 3.9                                                                            |
| Dissolved Oxygen (mg/L)          | 0.19                                                                           |
| Temperature (Degrees Celsius)    | 15.6                                                                           |
| Redox (ORP mV)                   | -76                                                                            |
| parameters                       | @15:40, DTW:0.33, pH:7.39, temp:15.6, cond:0.195, turb:3.9, DO:0.19, redox:-76 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:45, DTW:0.33, pH:7.34, temp:15.6, cond:0.205, turb:3.83, DO:0.19, redox:-88.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 15:45                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 0.33                                                                              |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 7.34                                                                              |
| Conductivity (mS/cm)             | 0.205                                                                             |
| Turbidity (NTU)                  | 3.83                                                                              |
| Dissolved Oxygen (mg/L)          | 0.19                                                                              |
| Temperature (Degrees Celsius)    | 15.6                                                                              |
| Redox (ORP mV)                   | -88.1                                                                             |
| parameters                       | @15:45, DTW:0.33, pH:7.34, temp:15.6, cond:0.205, turb:3.83, DO:0.19, redox:-88.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:50, DTW:0.33, pH:7.34, temp:15.8, cond:0.204, turb:2.47, DO:0.21, redox:-88.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 0.33  |
| Milliliters Purged (total)       | 4000  |
| pH                               | 7.34  |
| Conductivity (mS/cm)             | 0.204 |
| Turbidity (NTU)                  | 2.47  |
| Dissolved Oxygen (mg/L)          | 0.21  |
| Temperature (Degrees Celsius)    | 15.8  |
| Redox (ORP mV)                   | -88.6 |

parameters @15:50, DTW:0.33, pH:7.34, temp:15.8, cond:0.204, turb:2.47, DO:0.21, redox:-88.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:55, DTW:0.33, pH:7.35, temp:15.9, cond:0.2, turb:2.48, DO:0.22, redox:-87.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 0.33  |
| Milliliters Purged (total)       | 5000  |
| pH                               | 7.35  |
| Conductivity (mS/cm)             | 0.2   |
| Turbidity (NTU)                  | 2.48  |
| Dissolved Oxygen (mg/L)          | 0.22  |
| Temperature (Degrees Celsius)    | 15.9  |
| Redox (ORP mV)                   | -87.8 |

parameters @15:55, DTW:0.33, pH:7.35, temp:15.9, cond:0.2, turb:2.48, DO:0.22, redox:-87.8

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

Purge End 16:05

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 16:00 |
| Color         | Clear |
| Notable odors | None  |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## Well Information

|                          |                     |
|--------------------------|---------------------|
| Condition of Well        | Poor. J-plug added. |
| Well Locked at Arrival   | No                  |
| Well Locked at Departure | No                  |



Signature

A handwritten signature in black ink, appearing to be 'Chad Walsh', written in a cursive style.

Signed 2019-06-12 19:32:09 UTC

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## 2019-06-12, UNK-11, UNK-11

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 14:43:14 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-12 15:17:44 EDT by Christine Gregg |
| Location                                                                                          | 42.74514253, -84.58381257                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-12                                 |
| Well Identification                                                                               | UNK-11                                     |
| Well ID                                                                                           | UNK-11                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Cloudy, 70F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 2.8           |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 11.5          |
| Water Column                                                                                                                                                                                                                                           | 8.7           |
| Gallons in Well                                                                                                                                                                                                                                        | 1.41          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 9             |
| Purge Start                                                                                                                                                                                                                                            | 14:45         |

### @14:50, DTW:2.88, pH:7.22, temp:16.2, cond:0.451, turb:8.94, DO:0.48, redox:-93.1

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 14:50                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 2.88                                                                              |
| Milliliters Purged (total)    | 1000                                                                              |
| pH                            | 7.22                                                                              |
| Conductivity (mS/cm)          | 0.451                                                                             |
| Turbidity (NTU)               | 8.94                                                                              |
| Dissolved Oxygen (mg/L)       | 0.48                                                                              |
| Temperature (Degrees Celsius) | 16.2                                                                              |
| Redox (ORP mV)                | -93.1                                                                             |
| parameters                    | @14:50, DTW:2.88, pH:7.22, temp:16.2, cond:0.451, turb:8.94, DO:0.48, redox:-93.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:55, DTW:2.88, pH:7.3, temp:16.1, cond:0.331, turb:3.94, DO:2.62, redox:-75.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 2.88                                                                             |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 7.3                                                                              |
| Conductivity (mS/cm)             | 0.331                                                                            |
| Turbidity (NTU)                  | 3.94                                                                             |
| Dissolved Oxygen (mg/L)          | 2.62                                                                             |
| Temperature (Degrees Celsius)    | 16.1                                                                             |
| Redox (ORP mV)                   | -75.4                                                                            |
| parameters                       | @14:55, DTW:2.88, pH:7.3, temp:16.1, cond:0.331, turb:3.94, DO:2.62, redox:-75.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:00, DTW:2.88, pH:7.26, temp:16.1, cond:0.328, turb:2, DO:2.52, redox:-73.3**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:00                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 2.88                                                                           |
| Milliliters Purged (total)       | 3000                                                                           |
| pH                               | 7.26                                                                           |
| Conductivity (mS/cm)             | 0.328                                                                          |
| Turbidity (NTU)                  | 2                                                                              |
| Dissolved Oxygen (mg/L)          | 2.52                                                                           |
| Temperature (Degrees Celsius)    | 16.1                                                                           |
| Redox (ORP mV)                   | -73.3                                                                          |
| parameters                       | @15:00, DTW:2.88, pH:7.26, temp:16.1, cond:0.328, turb:2, DO:2.52, redox:-73.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:05, DTW:2.88, pH:7.23, temp:16, cond:0.334, turb:1.62, DO:2.82, redox:-74.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 2.88  |
| Milliliters Purged (total)       | 4000  |
| pH                               | 7.23  |
| Conductivity (mS/cm)             | 0.334 |
| Turbidity (NTU)                  | 1.62  |
| Dissolved Oxygen (mg/L)          | 2.82  |
| Temperature (Degrees Celsius)    | 16    |
| Redox (ORP mV)                   | -74.6 |



parameters

@15:05, DTW:2.88, pH:7.23, temp:16, cond:0.334, turb:1.62, DO:2.82, redox:-74.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 15:15 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 15:10 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### VOCs

|                     |      |
|---------------------|------|
| Constituent Sampled | VOCs |
|---------------------|------|

|                |            |
|----------------|------------|
| Container Type | 40 mL Vial |
|----------------|------------|

|                      |   |
|----------------------|---|
| Number of Containers | 3 |
|----------------------|---|

|              |     |
|--------------|-----|
| Preservative | HCL |
|--------------|-----|

### Well Information

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |    |
|------------------------|----|
| Well Locked at Arrival | No |
|------------------------|----|

|                          |    |
|--------------------------|----|
| Well Locked at Departure | No |
|--------------------------|----|

Signature

A handwritten signature in black ink, consisting of a large, stylized 'A' followed by a series of loops and a long horizontal stroke.

Signed 2019-06-12 18:44:35 UTC

## 2019-06-10, UNK-15, UNK-15

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 14:46:22 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-10 15:20:08 EDT by Christine Gregg |
| Location                                                                                          | 42.74533322, -84.58401675                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-10                                 |
| Well Identification                                                                               | UNK-15                                     |
| Well ID                                                                                           | UNK-15                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Cloudy, windy, 70F                         |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 4             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 1.45          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 15.7          |
| Water Column                                                                                                                                                                                                                                           | 14.25         |
| Gallons in Well                                                                                                                                                                                                                                        | 9.26          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 12.2          |
| Purge Start                                                                                                                                                                                                                                            | 14:45         |

### @14:50, DTW:1.81, pH:7.74, temp:14.1, cond:0.65, turb:22.8, DO:0.16, redox:71.9

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 14:50                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 1.81                                                                            |
| Milliliters Purged (total)    | 1000                                                                            |
| pH                            | 7.74                                                                            |
| Conductivity (mS/cm)          | 0.65                                                                            |
| Turbidity (NTU)               | 22.8                                                                            |
| Dissolved Oxygen (mg/L)       | 0.16                                                                            |
| Temperature (Degrees Celsius) | 14.1                                                                            |
| Redox (ORP mV)                | 71.9                                                                            |
| parameters                    | @14:50, DTW:1.81, pH:7.74, temp:14.1, cond:0.65, turb:22.8, DO:0.16, redox:71.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:55, DTW:2.2, pH:7.7, temp:14.7, cond:0.66, turb:12.8, DO:0.12, redox:38.4**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:55                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 2.2                                                                           |
| Milliliters Purged (total)       | 2000                                                                          |
| pH                               | 7.7                                                                           |
| Conductivity (mS/cm)             | 0.66                                                                          |
| Turbidity (NTU)                  | 12.8                                                                          |
| Dissolved Oxygen (mg/L)          | 0.12                                                                          |
| Temperature (Degrees Celsius)    | 14.7                                                                          |
| Redox (ORP mV)                   | 38.4                                                                          |
| parameters                       | @14:55, DTW:2.2, pH:7.7, temp:14.7, cond:0.66, turb:12.8, DO:0.12, redox:38.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:00, DTW:2.31, pH:7.69, temp:14.5, cond:0.65, turb:7.43, DO:0.11, redox:29.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 2.31                                                                            |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.69                                                                            |
| Conductivity (mS/cm)             | 0.65                                                                            |
| Turbidity (NTU)                  | 7.43                                                                            |
| Dissolved Oxygen (mg/L)          | 0.11                                                                            |
| Temperature (Degrees Celsius)    | 14.5                                                                            |
| Redox (ORP mV)                   | 29.2                                                                            |
| parameters                       | @15:00, DTW:2.31, pH:7.69, temp:14.5, cond:0.65, turb:7.43, DO:0.11, redox:29.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:05, DTW:2.35, pH:7.69, temp:14.5, cond:0.64, turb:4.28, DO:0.09, redox:15.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 2.35  |
| Milliliters Purged (total)       | 4000  |
| pH                               | 7.69  |
| Conductivity (mS/cm)             | 0.64  |
| Turbidity (NTU)                  | 4.28  |
| Dissolved Oxygen (mg/L)          | 0.09  |
| Temperature (Degrees Celsius)    | 14.5  |
| Redox (ORP mV)                   | 15.2  |



parameters

@15:05, DTW:2.35, pH:7.69, temp:14.5, cond:0.64, turb:4.28, DO:0.09, redox:15.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:10, DTW:2.35, pH:7.69, temp:14.4, cond:0.62, turb:3.32, DO:0.09, redox:12.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 2.35  |
| Milliliters Purged (total)       | 5000  |
| pH                               | 7.69  |
| Conductivity (mS/cm)             | 0.62  |
| Turbidity (NTU)                  | 3.32  |
| Dissolved Oxygen (mg/L)          | 0.09  |
| Temperature (Degrees Celsius)    | 14.4  |
| Redox (ORP mV)                   | 12.1  |

parameters

@15:10, DTW:2.35, pH:7.69, temp:14.4, cond:0.62, turb:3.32, DO:0.09, redox:12.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:15, DTW:2.35, pH:7.68, temp:14.3, cond:0.61, turb:2.89, DO:0.09, redox:11.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 2.35  |
| Milliliters Purged (total)       | 6000  |
| pH                               | 7.68  |
| Conductivity (mS/cm)             | 0.61  |
| Turbidity (NTU)                  | 2.89  |
| Dissolved Oxygen (mg/L)          | 0.09  |
| Temperature (Degrees Celsius)    | 14.3  |
| Redox (ORP mV)                   | 11.6  |

parameters

@15:15, DTW:2.35, pH:7.68, temp:14.3, cond:0.61, turb:2.89, DO:0.09, redox:11.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 15:25 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:20 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                      |                |
|----------------------|----------------|
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | No   |
| Well Locked at Departure | No   |
| Signature                |      |

A handwritten signature in black ink, appearing to read "Amel W". The signature is fluid and cursive, with the first name "Amel" and the last name or initial "W" clearly distinguishable.

Signed 2019-06-10 18:48:10 UTC

## 2019-08-28, UNK-15

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 18:31:42 UTC by Gary Schafer |
| Updated                                                                                           | 2020-03-31 18:39:34 UTC by Gary Schafer |
| Location                                                                                          | 42.5032309955382, -83.4427219816329     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-08-28                              |
| Well ID                                                                                           | UNK-15                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Sun clouds temp 73                      |

### Evacuation Details

|                                                                                                                                                                                                                                                                    |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                   | Top of Casing |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                        | 3.95          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                               | 15.65         |
| Water Column                                                                                                                                                                                                                                                       | 11.7          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1\text{ foot}$ ] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                       | Low-Flow      |
| Sample Method                                                                                                                                                                                                                                                      | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                        | 13:43         |

### @13:45, DTW:3.95, pH:6.62, temp:21.1, cond:0.84, turb:10.2, DO:0.23, redox:-39.6

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 13:45                                                                            |
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 3.95                                                                             |
| pH                            | 6.62                                                                             |
| Conductivity (mS/cm)          | 0.84                                                                             |
| Turbidity (NTU)               | 10.2                                                                             |
| Dissolved Oxygen (mg/L)       | 0.23                                                                             |
| Temperature (Degrees Celsius) | 21.1                                                                             |
| Redox (ORP mV)                | -39.6                                                                            |
| parameters                    | @13:45, DTW:3.95, pH:6.62, temp:21.1, cond:0.84, turb:10.2, DO:0.23, redox:-39.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:50, DTW:4.02, pH:6.57, temp:20.7, cond:0.84, turb:12, DO:0.23, redox:-45

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 4.02  |
| pH                               | 6.57  |
| Conductivity (mS/cm)             | 0.84  |



|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Turbidity (NTU)               | 12                                                                           |
| Dissolved Oxygen (mg/L)       | 0.23                                                                         |
| Temperature (Degrees Celsius) | 20.7                                                                         |
| Redox (ORP mV)                | -45                                                                          |
| parameters                    | @13:50, DTW:4.02, pH:6.57, temp:20.7, cond:0.84, turb:12, DO:0.23, redox:-45 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:55, DTW:4.21, pH:6.61, temp:20.7, cond:0.83, turb:10, DO:0.26, redox:-52.3**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:55                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 4.21                                                                           |
| pH                               | 6.61                                                                           |
| Conductivity (mS/cm)             | 0.83                                                                           |
| Turbidity (NTU)                  | 10                                                                             |
| Dissolved Oxygen (mg/L)          | 0.26                                                                           |
| Temperature (Degrees Celsius)    | 20.7                                                                           |
| Redox (ORP mV)                   | -52.3                                                                          |
| parameters                       | @13:55, DTW:4.21, pH:6.61, temp:20.7, cond:0.83, turb:10, DO:0.26, redox:-52.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:00, DTW:4.31, pH:6.48, temp:20.6, cond:0.83, turb:2.01, DO:0.24, redox:-44.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 4.31                                                                             |
| pH                               | 6.48                                                                             |
| Conductivity (mS/cm)             | 0.83                                                                             |
| Turbidity (NTU)                  | 2.01                                                                             |
| Dissolved Oxygen (mg/L)          | 0.24                                                                             |
| Temperature (Degrees Celsius)    | 20.6                                                                             |
| Redox (ORP mV)                   | -44.4                                                                            |
| parameters                       | @14:00, DTW:4.31, pH:6.48, temp:20.6, cond:0.83, turb:2.01, DO:0.24, redox:-44.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:05, DTW:4.46, pH:6.5, temp:20.8, cond:0.83, turb:2.99, DO:0.25, redox:-45**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 4.46  |
| pH                               | 6.5   |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 0.83                                                                          |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 2.99                                                                          |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.25                                                                          |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 20.8                                                                          |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -45                                                                           |
| parameters                                                                                                                                                                                                                                                                                                                                       | @14:05, DTW:4.46, pH:6.5, temp:20.8, cond:0.83, turb:2.99, DO:0.25, redox:-45 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                               |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 14:10                                                                         |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Gallons                                                                       |
| Total Gallons Purged                                                                                                                                                                                                                                                                                                                             | 1.5                                                                           |

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 14:07 |
|-------------|-------|

### Well Information

|                          |        |
|--------------------------|--------|
| Well Location            | UNK-15 |
| Condition of Well        | Good   |
| Well Locked at Arrival   | Yes    |
| Well Locked at Departure | Yes    |

Signature



Signed 2020-03-31 18:39:32 UTC

## 2019-12-06, UNK-15

|                                                                                                   |                                           |
|---------------------------------------------------------------------------------------------------|-------------------------------------------|
| Created                                                                                           | 2019-12-06 13:40:11 UTC by Melissa Weaver |
| Updated                                                                                           | 2019-12-06 21:42:14 UTC by Melissa Weaver |
| Location                                                                                          | 42.7444150674877, -84.5827035605907       |
| Project Number                                                                                    | 30006870                                  |
| Project Name / Location                                                                           | RACER Lansing, MI                         |
| Sampler Name                                                                                      | Melissa Weaver                            |
| Date                                                                                              | 2019-12-06                                |
| Well ID                                                                                           | UNK-15                                    |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                       |
| Weather                                                                                           | 33 cloudy                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 4             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 2.02          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 15.65         |
| Water Column                                                                                                                                                                                                                                                 | 13.63         |
| Gallons in Well                                                                                                                                                                                                                                              | 8.86          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 13            |
| Purge Start                                                                                                                                                                                                                                                  | 11:10         |

### @11:15, DTW:2.56, pH:7.69, temp:12.1, cond:0.76, turb:0.02, DO:2.27, redox:180.9

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 11:15                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 2.56                                                                             |
| pH                            | 7.69                                                                             |
| Conductivity (mS/cm)          | 0.76                                                                             |
| Turbidity (NTU)               | 0.02                                                                             |
| Dissolved Oxygen (mg/L)       | 2.27                                                                             |
| Temperature (Degrees Celsius) | 12.1                                                                             |
| Redox (ORP mV)                | 180.9                                                                            |
| parameters                    | @11:15, DTW:2.56, pH:7.69, temp:12.1, cond:0.76, turb:0.02, DO:2.27, redox:180.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:20, DTW:2.95, pH:7.68, temp:12.3, cond:0.75, turb:0.02, DO:2.26, redox:177

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:20 |
| Minutes Elapsed between readings | 5     |



|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 2.95                                                                           |
| pH                            | 7.68                                                                           |
| Conductivity (mS/cm)          | 0.75                                                                           |
| Turbidity (NTU)               | 0.02                                                                           |
| Dissolved Oxygen (mg/L)       | 2.26                                                                           |
| Temperature (Degrees Celsius) | 12.3                                                                           |
| Redox (ORP mV)                | 177                                                                            |
| parameters                    | @11:20, DTW:2.95, pH:7.68, temp:12.3, cond:0.75, turb:0.02, DO:2.26, redox:177 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:25, DTW:3.3, pH:7.64, temp:12.1, cond:0.75, turb:0.02, DO:2.28, redox:177.3

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 3.3                                                                             |
| pH                               | 7.64                                                                            |
| Conductivity (mS/cm)             | 0.75                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 2.28                                                                            |
| Temperature (Degrees Celsius)    | 12.1                                                                            |
| Redox (ORP mV)                   | 177.3                                                                           |
| parameters                       | @11:25, DTW:3.3, pH:7.64, temp:12.1, cond:0.75, turb:0.02, DO:2.28, redox:177.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 11:25 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:25 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of stylized, cursive letters that appear to be 'M' and 'L'.

Signed 2019-12-06 21:42:13 UTC

---

## 2019-02-27, AS-16-01, AS-16-01

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-02-27 15:16:18 EST by Billy Cobern    |
| Updated                                                                                           | 2019-02-27 15:44:04 EST by Christine Gregg |
| Location                                                                                          | 42.73679046, -84.58559666                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-02-27                                 |
| Well Identification                                                                               | AS-16-01                                   |
| Well ID                                                                                           | AS-16-01                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy 20's                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 51.3          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 75.2          |
| Water Column                                                                                                                                                                                                                                              | 23.9          |
| Gallons in Well                                                                                                                                                                                                                                           | 3.88          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 72            |
| Purge Start                                                                                                                                                                                                                                               | 15:05         |

### @15:05, DTW:51.3, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 15:05                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 51.3                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @15:05, DTW:51.3, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:10, DTW:51.3, pH:8.24, temp:11.2, cond:1.47, turb:45.9, DO:13.16, redox:53.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 51.3  |
| Milliliters Purged (total)       | 500   |
| pH                               | 8.24  |



|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.47                                                                             |
| Turbidity (NTU)               | 45.9                                                                             |
| Dissolved Oxygen (mg/L)       | 13.16                                                                            |
| Temperature (Degrees Celsius) | 11.2                                                                             |
| Redox (ORP mV)                | 53.3                                                                             |
| parameters                    | @15:10, DTW:51.3, pH:8.24, temp:11.2, cond:1.47, turb:45.9, DO:13.16, redox:53.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:15, DTW:51.3, pH:8.27, temp:10.9, cond:1.47, turb:25.7, DO:12.61, redox:54**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:15                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 51.3                                                                           |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 8.27                                                                           |
| Conductivity (mS/cm)             | 1.47                                                                           |
| Turbidity (NTU)                  | 25.7                                                                           |
| Dissolved Oxygen (mg/L)          | 12.61                                                                          |
| Temperature (Degrees Celsius)    | 10.9                                                                           |
| Redox (ORP mV)                   | 54                                                                             |
| parameters                       | @15:15, DTW:51.3, pH:8.27, temp:10.9, cond:1.47, turb:25.7, DO:12.61, redox:54 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:20, DTW:51.3, pH:8.32, temp:11, cond:1.47, turb:21, DO:13.08, redox:54.7**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 15:20                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 51.3                                                                         |
| Milliliters Purged (total)       | 1500                                                                         |
| pH                               | 8.32                                                                         |
| Conductivity (mS/cm)             | 1.47                                                                         |
| Turbidity (NTU)                  | 21                                                                           |
| Dissolved Oxygen (mg/L)          | 13.08                                                                        |
| Temperature (Degrees Celsius)    | 11                                                                           |
| Redox (ORP mV)                   | 54.7                                                                         |
| parameters                       | @15:20, DTW:51.3, pH:8.32, temp:11, cond:1.47, turb:21, DO:13.08, redox:54.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:25, DTW:51.3, pH:8.33, temp:10.9, cond:1.47, turb:13.8, DO:12.7, redox:54.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:25 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                             |
| Depth to Water (ft)           | 51.3                                                                            |
| Milliliters Purged (total)    | 2000                                                                            |
| pH                            | 8.33                                                                            |
| Conductivity (mS/cm)          | 1.47                                                                            |
| Turbidity (NTU)               | 13.8                                                                            |
| Dissolved Oxygen (mg/L)       | 12.7                                                                            |
| Temperature (Degrees Celsius) | 10.9                                                                            |
| Redox (ORP mV)                | 54.8                                                                            |
| parameters                    | @15:25, DTW:51.3, pH:8.33, temp:10.9, cond:1.47, turb:13.8, DO:12.7, redox:54.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:30, DTW:51.3, pH:8.33, temp:10.9, cond:1.47, turb:11.1, DO:13.71, redox:54.9**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 51.3                                                                             |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 8.33                                                                             |
| Conductivity (mS/cm)             | 1.47                                                                             |
| Turbidity (NTU)                  | 11.1                                                                             |
| Dissolved Oxygen (mg/L)          | 13.71                                                                            |
| Temperature (Degrees Celsius)    | 10.9                                                                             |
| Redox (ORP mV)                   | 54.9                                                                             |
| parameters                       | @15:30, DTW:51.3, pH:8.33, temp:10.9, cond:1.47, turb:11.1, DO:13.71, redox:54.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:35, DTW:51.3, pH:8.33, temp:11.5, cond:1.47, turb:10.8, DO:13.63, redox:54.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 51.3                                                                             |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 8.33                                                                             |
| Conductivity (mS/cm)             | 1.47                                                                             |
| Turbidity (NTU)                  | 10.8                                                                             |
| Dissolved Oxygen (mg/L)          | 13.63                                                                            |
| Temperature (Degrees Celsius)    | 11.5                                                                             |
| Redox (ORP mV)                   | 54.8                                                                             |
| parameters                       | @15:35, DTW:51.3, pH:8.33, temp:11.5, cond:1.47, turb:10.8, DO:13.63, redox:54.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:40, DTW:51.3, pH:8.34, temp:11.3, cond:1.46, turb:9.34, DO:13.45, redox:54.7

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 51.3                                                                             |
| Milliliters Purged (total)       | 3500                                                                             |
| pH                               | 8.34                                                                             |
| Conductivity (mS/cm)             | 1.46                                                                             |
| Turbidity (NTU)                  | 9.34                                                                             |
| Dissolved Oxygen (mg/L)          | 13.45                                                                            |
| Temperature (Degrees Celsius)    | 11.3                                                                             |
| Redox (ORP mV)                   | 54.7                                                                             |
| parameters                       | @15:40, DTW:51.3, pH:8.34, temp:11.3, cond:1.46, turb:9.34, DO:13.45, redox:54.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:45, DTW:51.3, pH:8.34, temp:11.4, cond:1.47, turb:9.64, DO:13.97, redox:54.7

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 51.3                                                                             |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 8.34                                                                             |
| Conductivity (mS/cm)             | 1.47                                                                             |
| Turbidity (NTU)                  | 9.64                                                                             |
| Dissolved Oxygen (mg/L)          | 13.97                                                                            |
| Temperature (Degrees Celsius)    | 11.4                                                                             |
| Redox (ORP mV)                   | 54.7                                                                             |
| parameters                       | @15:45, DTW:51.3, pH:8.34, temp:11.4, cond:1.47, turb:9.64, DO:13.97, redox:54.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:50, DTW:51.3, pH:8.35, temp:11.3, cond:1.46, turb:10.5, DO:13.02, redox:54.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 51.3  |
| Milliliters Purged (total)       | 4500  |
| pH                               | 8.35  |
| Conductivity (mS/cm)             | 1.46  |
| Turbidity (NTU)                  | 10.5  |



|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 13.02                                                                            |
| Temperature (Degrees Celsius) | 11.3                                                                             |
| Redox (ORP mV)                | 54.7                                                                             |
| parameters                    | @15:50, DTW:51.3, pH:8.35, temp:11.3, cond:1.46, turb:10.5, DO:13.02, redox:54.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:55, DTW:51.3, pH:8.35, temp:11.2, cond:1.47, turb:9.32, DO:12.9, redox:55**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 15:55                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 51.3                                                                          |
| Milliliters Purged (total)       | 5000                                                                          |
| pH                               | 8.35                                                                          |
| Conductivity (mS/cm)             | 1.47                                                                          |
| Turbidity (NTU)                  | 9.32                                                                          |
| Dissolved Oxygen (mg/L)          | 12.9                                                                          |
| Temperature (Degrees Celsius)    | 11.2                                                                          |
| Redox (ORP mV)                   | 55                                                                            |
| parameters                       | @15:55, DTW:51.3, pH:8.35, temp:11.2, cond:1.47, turb:9.32, DO:12.9, redox:55 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:00, DTW:51.3, pH:8.36, temp:11.2, cond:1.47, turb:9.12, DO:12.18, redox:55.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 16:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 51.3                                                                             |
| Milliliters Purged (total)       | 5500                                                                             |
| pH                               | 8.36                                                                             |
| Conductivity (mS/cm)             | 1.47                                                                             |
| Turbidity (NTU)                  | 9.12                                                                             |
| Dissolved Oxygen (mg/L)          | 12.18                                                                            |
| Temperature (Degrees Celsius)    | 11.2                                                                             |
| Redox (ORP mV)                   | 55.1                                                                             |
| parameters                       | @16:00, DTW:51.3, pH:8.36, temp:11.2, cond:1.47, turb:9.12, DO:12.18, redox:55.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:05, DTW:51.3, pH:8.36, temp:11.1, cond:1.47, turb:9.64, DO:12.63, redox:55.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 16:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 51.3  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Milliliters Purged (total)                                                                                                                                                                                                                                                                                                                       | 6000                                                                             |
| pH                                                                                                                                                                                                                                                                                                                                               | 8.36                                                                             |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1.47                                                                             |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 9.64                                                                             |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 12.63                                                                            |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 11.1                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 55.1                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @16:05, DTW:51.3, pH:8.36, temp:11.1, cond:1.47, turb:9.64, DO:12.63, redox:55.1 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 16:05                                                                            |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                      |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6000                                                                             |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.41                                                                             |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 16:05 |
| Color         | Clear |
| Notable odors | No    |

## 1,4 Dioxane, Nitrate, phosphorus, TKN

|                      |                                       |
|----------------------|---------------------------------------|
| Constituent Sampled  | 1,4 Dioxane, Nitrate, phosphorus, TKN |
| Container Type       | 40 mL Vial                            |
| Number of Containers | 5                                     |
| Preservative         | None, HCL, H2SO4                      |

## Well Information

|                          |                                                          |
|--------------------------|----------------------------------------------------------|
| Well Location            | On site Plant 2                                          |
| Condition of Well        | Good                                                     |
| Well Locked at Arrival   | No                                                       |
| Well Locked at Departure | No                                                       |
| Comments                 | Well under pressure. Difficult to determine water depths |

Signature

A handwritten signature in black ink, appearing to be 'Zurh' or similar, with a long horizontal stroke extending to the right.

Signed 2019-02-27 20:20:36 UTC

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## 2019-04-08, AS-16-01, AS-16-01

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-04-08 15:11:23 EDT by Daniel Stockard |
| Updated                                                                                           | 2019-04-08 15:34:42 EDT by Christine Gregg |
| Location                                                                                          | 42.73678158, -84.58588416                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Daniel Stockard                            |
| Date                                                                                              | 2019-04-08                                 |
| Well Identification                                                                               | AS-16-01                                   |
| Well ID                                                                                           | AS-16-01                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Sunny, 60s                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 62            |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 75            |
| Water Column                                                                                                                                                                                                                                              | 13            |
| Gallons in Well                                                                                                                                                                                                                                           | 2.11          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Grab          |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 71            |
| Purge Start                                                                                                                                                                                                                                               | 15:00         |

### @15:10, DTW:62.03, pH:7.49, temp:16, cond:1.645, turb:113, DO:10.46, redox:85.5

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 15:10                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 62.03                                                                           |
| pH                            | 7.49                                                                            |
| Conductivity (mS/cm)          | 1.645                                                                           |
| Turbidity (NTU)               | 113                                                                             |
| Dissolved Oxygen (mg/L)       | 10.46                                                                           |
| Temperature (Degrees Celsius) | 16                                                                              |
| Redox (ORP mV)                | 85.5                                                                            |
| parameters                    | @15:10, DTW:62.03, pH:7.49, temp:16, cond:1.645, turb:113, DO:10.46, redox:85.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:15, DTW:61.75, pH:7.43, temp:16.1, cond:1.64, turb:118, DO:10.16, redox:85.1

|              |       |
|--------------|-------|
| Reading Time | 15:15 |
|--------------|-------|

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 61.75                                                                            |
| pH                               | 7.43                                                                             |
| Conductivity (mS/cm)             | 1.64                                                                             |
| Turbidity (NTU)                  | 118                                                                              |
| Dissolved Oxygen (mg/L)          | 10.16                                                                            |
| Temperature (Degrees Celsius)    | 16.1                                                                             |
| Redox (ORP mV)                   | 85.1                                                                             |
| parameters                       | @15:15, DTW:61.75, pH:7.43, temp:16.1, cond:1.64, turb:118, DO:10.16, redox:85.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:20, DTW:61.96, pH:7.52, temp:15.9, cond:1.642, turb:50.8, DO:10.56, redox:84.7**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 15:20                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 61.96                                                                              |
| pH                               | 7.52                                                                               |
| Conductivity (mS/cm)             | 1.642                                                                              |
| Turbidity (NTU)                  | 50.8                                                                               |
| Dissolved Oxygen (mg/L)          | 10.56                                                                              |
| Temperature (Degrees Celsius)    | 15.9                                                                               |
| Redox (ORP mV)                   | 84.7                                                                               |
| parameters                       | @15:20, DTW:61.96, pH:7.52, temp:15.9, cond:1.642, turb:50.8, DO:10.56, redox:84.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:25, DTW:61.7, pH:7.56, temp:17, cond:1.645, turb:39.67, DO:12.49, redox:86.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 61.7                                                                             |
| pH                               | 7.56                                                                             |
| Conductivity (mS/cm)             | 1.645                                                                            |
| Turbidity (NTU)                  | 39.67                                                                            |
| Dissolved Oxygen (mg/L)          | 12.49                                                                            |
| Temperature (Degrees Celsius)    | 17                                                                               |
| Redox (ORP mV)                   | 86.1                                                                             |
| parameters                       | @15:25, DTW:61.7, pH:7.56, temp:17, cond:1.645, turb:39.67, DO:12.49, redox:86.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:30, DTW:61.7, pH:7.54, temp:16.7, cond:1.655, turb:70, DO:11.33, redox:69.9**

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 15:30                                                                           |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                               |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 200                                                                             |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 61.7                                                                            |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.54                                                                            |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1.655                                                                           |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 70                                                                              |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 11.33                                                                           |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 16.7                                                                            |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 69.9                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @15:30, DTW:61.7, pH:7.54, temp:16.7, cond:1.655, turb:70, DO:11.33, redox:69.9 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                 |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 15:35                                                                           |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Gallons                                                                         |
| Total Gallons Purged                                                                                                                                                                                                                                                                                                                             | 1                                                                               |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.47                                                                            |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:35 |
| Color         | None  |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |      |
|--------------------------|------|
| Well Location            | P2   |
| Condition of Well        | Good |
| Well Locked at Arrival   | No   |
| Well Locked at Departure | No   |



Signature

Daniel  
Howard

Signed 2019-04-08 15:34:40 EDT

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## 2019-02-28, AS-16-02, AS-16-02

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-02-28 12:45:05 EST by Billy Cobern    |
| Updated                                                                                           | 2019-02-28 13:14:50 EST by Christine Gregg |
| Location                                                                                          | 42.73683799, -84.58577209                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-02-28                                 |
| Well Identification                                                                               | AS-16-02                                   |
| Well ID                                                                                           | AS-16-02                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | M Cloudy 20's                              |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 61.2          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 76.1          |
| Water Column                                                                                                                                                                                                                                              | 14.9          |
| Gallons in Well                                                                                                                                                                                                                                           | 2.42          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 73.5          |
| Purge Start                                                                                                                                                                                                                                               | 13:25         |

### @13:25, DTW:61.2, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 13:25                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 61.2                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @13:25, DTW:61.2, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:30, DTW:61.2, pH:6.67, temp:8.2, cond:2.48, turb:1000, DO:5.6, redox:85.4

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.2  |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.67  |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 2.48                                                                          |
| Turbidity (NTU)               | 1000                                                                          |
| Dissolved Oxygen (mg/L)       | 5.6                                                                           |
| Temperature (Degrees Celsius) | 8.2                                                                           |
| Redox (ORP mV)                | 85.4                                                                          |
| parameters                    | @13:30, DTW:61.2, pH:6.67, temp:8.2, cond:2.48, turb:1000, DO:5.6, redox:85.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:35, DTW:61.2, pH:6.59, temp:8.8, cond:2.52, turb:457, DO:4.79, redox:86.9**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 61.2                                                                          |
| Milliliters Purged (total)       | 1000                                                                          |
| pH                               | 6.59                                                                          |
| Conductivity (mS/cm)             | 2.52                                                                          |
| Turbidity (NTU)                  | 457                                                                           |
| Dissolved Oxygen (mg/L)          | 4.79                                                                          |
| Temperature (Degrees Celsius)    | 8.8                                                                           |
| Redox (ORP mV)                   | 86.9                                                                          |
| parameters                       | @13:35, DTW:61.2, pH:6.59, temp:8.8, cond:2.52, turb:457, DO:4.79, redox:86.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:61.2, pH:6.56, temp:8.8, cond:2.52, turb:219, DO:5.48, redox:87.6**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 61.2                                                                          |
| Milliliters Purged (total)       | 1500                                                                          |
| pH                               | 6.56                                                                          |
| Conductivity (mS/cm)             | 2.52                                                                          |
| Turbidity (NTU)                  | 219                                                                           |
| Dissolved Oxygen (mg/L)          | 5.48                                                                          |
| Temperature (Degrees Celsius)    | 8.8                                                                           |
| Redox (ORP mV)                   | 87.6                                                                          |
| parameters                       | @13:40, DTW:61.2, pH:6.56, temp:8.8, cond:2.52, turb:219, DO:5.48, redox:87.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:45, DTW:61.2, pH:6.56, temp:8.4, cond:2.53, turb:94.8, DO:6.12, redox:88.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:45 |
| Minutes Elapsed between readings | 5     |



|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                            |
| Depth to Water (ft)           | 61.2                                                                           |
| Milliliters Purged (total)    | 2000                                                                           |
| pH                            | 6.56                                                                           |
| Conductivity (mS/cm)          | 2.53                                                                           |
| Turbidity (NTU)               | 94.8                                                                           |
| Dissolved Oxygen (mg/L)       | 6.12                                                                           |
| Temperature (Degrees Celsius) | 8.4                                                                            |
| Redox (ORP mV)                | 88.5                                                                           |
| parameters                    | @13:45, DTW:61.2, pH:6.56, temp:8.4, cond:2.53, turb:94.8, DO:6.12, redox:88.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:50, DTW:61.2, pH:6.56, temp:8.4, cond:2.52, turb:59.8, DO:6.37, redox:88.7**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:50                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 61.2                                                                           |
| Milliliters Purged (total)       | 2500                                                                           |
| pH                               | 6.56                                                                           |
| Conductivity (mS/cm)             | 2.52                                                                           |
| Turbidity (NTU)                  | 59.8                                                                           |
| Dissolved Oxygen (mg/L)          | 6.37                                                                           |
| Temperature (Degrees Celsius)    | 8.4                                                                            |
| Redox (ORP mV)                   | 88.7                                                                           |
| parameters                       | @13:50, DTW:61.2, pH:6.56, temp:8.4, cond:2.52, turb:59.8, DO:6.37, redox:88.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:55, DTW:61.2, pH:6.56, temp:8.5, cond:2.52, turb:43.6, DO:6.39, redox:88.6**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:55                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 61.2                                                                           |
| Milliliters Purged (total)       | 3000                                                                           |
| pH                               | 6.56                                                                           |
| Conductivity (mS/cm)             | 2.52                                                                           |
| Turbidity (NTU)                  | 43.6                                                                           |
| Dissolved Oxygen (mg/L)          | 6.39                                                                           |
| Temperature (Degrees Celsius)    | 8.5                                                                            |
| Redox (ORP mV)                   | 88.6                                                                           |
| parameters                       | @13:55, DTW:61.2, pH:6.56, temp:8.5, cond:2.52, turb:43.6, DO:6.39, redox:88.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:00, DTW:61.2, pH:6.56, temp:8.5, cond:2.51, turb:35.9, DO:6.37, redox:88.6

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:00                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 61.2                                                                           |
| Milliliters Purged (total)       | 3500                                                                           |
| pH                               | 6.56                                                                           |
| Conductivity (mS/cm)             | 2.51                                                                           |
| Turbidity (NTU)                  | 35.9                                                                           |
| Dissolved Oxygen (mg/L)          | 6.37                                                                           |
| Temperature (Degrees Celsius)    | 8.5                                                                            |
| Redox (ORP mV)                   | 88.6                                                                           |
| parameters                       | @14:00, DTW:61.2, pH:6.56, temp:8.5, cond:2.51, turb:35.9, DO:6.37, redox:88.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:05, DTW:61.2, pH:6.56, temp:8.5, cond:2.51, turb:20.7, DO:6.4, redox:88.7

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:05                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 61.2                                                                          |
| Milliliters Purged (total)       | 4000                                                                          |
| pH                               | 6.56                                                                          |
| Conductivity (mS/cm)             | 2.51                                                                          |
| Turbidity (NTU)                  | 20.7                                                                          |
| Dissolved Oxygen (mg/L)          | 6.4                                                                           |
| Temperature (Degrees Celsius)    | 8.5                                                                           |
| Redox (ORP mV)                   | 88.7                                                                          |
| parameters                       | @14:05, DTW:61.2, pH:6.56, temp:8.5, cond:2.51, turb:20.7, DO:6.4, redox:88.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:10, DTW:61.2, pH:6.55, temp:8.4, cond:2.51, turb:37.9, DO:6.5, redox:88.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.2  |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.55  |
| Conductivity (mS/cm)             | 2.51  |
| Turbidity (NTU)                  | 37.9  |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 6.5                                                                           |
| Temperature (Degrees Celsius) | 8.4                                                                           |
| Redox (ORP mV)                | 88.7                                                                          |
| parameters                    | @14:10, DTW:61.2, pH:6.55, temp:8.4, cond:2.51, turb:37.9, DO:6.5, redox:88.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:15, DTW:61.2, pH:6.55, temp:8.5, cond:2.51, turb:35.9, DO:6.35, redox:88.7**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:15                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 61.2                                                                           |
| Milliliters Purged (total)       | 5000                                                                           |
| pH                               | 6.55                                                                           |
| Conductivity (mS/cm)             | 2.51                                                                           |
| Turbidity (NTU)                  | 35.9                                                                           |
| Dissolved Oxygen (mg/L)          | 6.35                                                                           |
| Temperature (Degrees Celsius)    | 8.5                                                                            |
| Redox (ORP mV)                   | 88.7                                                                           |
| parameters                       | @14:15, DTW:61.2, pH:6.55, temp:8.5, cond:2.51, turb:35.9, DO:6.35, redox:88.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:20, DTW:61.2, pH:6.55, temp:8.4, cond:2.51, turb:25.4, DO:6.53, redox:88.7**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:20                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 61.2                                                                           |
| Milliliters Purged (total)       | 5500                                                                           |
| pH                               | 6.55                                                                           |
| Conductivity (mS/cm)             | 2.51                                                                           |
| Turbidity (NTU)                  | 25.4                                                                           |
| Dissolved Oxygen (mg/L)          | 6.53                                                                           |
| Temperature (Degrees Celsius)    | 8.4                                                                            |
| Redox (ORP mV)                   | 88.7                                                                           |
| parameters                       | @14:20, DTW:61.2, pH:6.55, temp:8.4, cond:2.51, turb:25.4, DO:6.53, redox:88.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:25, DTW:61.2, pH:6.55, temp:8.5, cond:2.51, turb:23.7, DO:6.77, redox:88.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.2  |



|                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Milliliters Purged (total)                                                                                                                                                                                                                                                                                                                       | 6000                                                                           |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.55                                                                           |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 2.51                                                                           |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 23.7                                                                           |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 6.77                                                                           |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 8.5                                                                            |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 88.8                                                                           |
| parameters                                                                                                                                                                                                                                                                                                                                       | @14:25, DTW:61.2, pH:6.55, temp:8.5, cond:2.51, turb:23.7, DO:6.77, redox:88.8 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 14:25                                                                          |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                    |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6000                                                                           |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.66                                                                           |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:25 |
| Color         | Clear |
| Notable odors | No    |

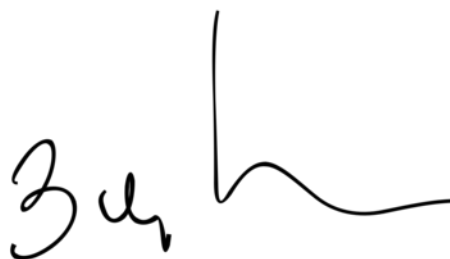
## 1,4 Dioxane, Nitrate, Phosphorus, TKN

|                      |                                       |
|----------------------|---------------------------------------|
| Constituent Sampled  | 1,4 Dioxane, Nitrate, Phosphorus, TKN |
| Number of Containers | 5                                     |

## Well Information

|                          |                                                                                 |
|--------------------------|---------------------------------------------------------------------------------|
| Well Location            | On site Plant 2                                                                 |
| Condition of Well        | Good                                                                            |
| Well Locked at Arrival   | No                                                                              |
| Well Locked at Departure | No                                                                              |
| Comments                 | Well under pressure, DTW measurements are difficult, turbidity didn't stabilize |

Signature

A handwritten signature in black ink, appearing to be 'Zach' followed by a stylized flourish.

Signed 2019-02-28 17:47:24 UTC

---

## 2019-04-08, AS-16-02, AS-16-02

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-04-08 12:10:31 EDT by Daniel Stockard |
| Updated                                                                                           | 2019-04-08 12:45:17 EDT by Christine Gregg |
| Location                                                                                          | 42.73706064, -84.58775729                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Daniel Stockard                            |
| Date                                                                                              | 2019-04-08                                 |
| Well Identification                                                                               | AS-16-02                                   |
| Well ID                                                                                           | AS-16-02                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Sunny, 60s                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 66.52         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 75            |
| Water Column                                                                                                                                                                                                                                           | 8.48          |
| Gallons in Well                                                                                                                                                                                                                                        | 1.38          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Bladder       |
| Sample Method                                                                                                                                                                                                                                          | Grab          |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 71            |
| Purge Start                                                                                                                                                                                                                                            | 12:05         |

### @12:10, DTW:66.12, pH:6.79, temp:15, cond:2.743, turb:391, DO:9.42, redox:122

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Reading Time                  | 12:10                                                                         |
| Rate (mL/min)                 | 200                                                                           |
| Depth to Water (ft)           | 66.12                                                                         |
| pH                            | 6.79                                                                          |
| Conductivity (mS/cm)          | 2.743                                                                         |
| Turbidity (NTU)               | 391                                                                           |
| Dissolved Oxygen (mg/L)       | 9.42                                                                          |
| Temperature (Degrees Celsius) | 15                                                                            |
| Redox (ORP mV)                | 122                                                                           |
| parameters                    | @12:10, DTW:66.12, pH:6.79, temp:15, cond:2.743, turb:391, DO:9.42, redox:122 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:15, DTW:66.47, pH:6.78, temp:14.8, cond:2.731, turb:425, DO:9.48, redox:122.4

|              |       |
|--------------|-------|
| Reading Time | 12:15 |
|--------------|-------|



|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 66.47                                                                             |
| pH                               | 6.78                                                                              |
| Conductivity (mS/cm)             | 2.731                                                                             |
| Turbidity (NTU)                  | 425                                                                               |
| Dissolved Oxygen (mg/L)          | 9.48                                                                              |
| Temperature (Degrees Celsius)    | 14.8                                                                              |
| Redox (ORP mV)                   | 122.4                                                                             |
| parameters                       | @12:15, DTW:66.47, pH:6.78, temp:14.8, cond:2.731, turb:425, DO:9.48, redox:122.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:20, DTW:66.75, pH:6.69, temp:14.7, cond:2.73, turb:315, DO:9.07, redox:122.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 66.75                                                                            |
| pH                               | 6.69                                                                             |
| Conductivity (mS/cm)             | 2.73                                                                             |
| Turbidity (NTU)                  | 315                                                                              |
| Dissolved Oxygen (mg/L)          | 9.07                                                                             |
| Temperature (Degrees Celsius)    | 14.7                                                                             |
| Redox (ORP mV)                   | 122.4                                                                            |
| parameters                       | @12:20, DTW:66.75, pH:6.69, temp:14.7, cond:2.73, turb:315, DO:9.07, redox:122.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:25, DTW:66.89, pH:6.7, temp:14.7, cond:2.721, turb:335, DO:8.97, redox:121.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 66.89                                                                            |
| pH                               | 6.7                                                                              |
| Conductivity (mS/cm)             | 2.721                                                                            |
| Turbidity (NTU)                  | 335                                                                              |
| Dissolved Oxygen (mg/L)          | 8.97                                                                             |
| Temperature (Degrees Celsius)    | 14.7                                                                             |
| Redox (ORP mV)                   | 121.6                                                                            |
| parameters                       | @12:25, DTW:66.89, pH:6.7, temp:14.7, cond:2.721, turb:335, DO:8.97, redox:121.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:30, DTW:68.45, pH:6.64, temp:14.7, cond:2.678, turb:282, DO:9.14, redox:125.8**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 68.45                                                                             |
| pH                               | 6.64                                                                              |
| Conductivity (mS/cm)             | 2.678                                                                             |
| Turbidity (NTU)                  | 282                                                                               |
| Dissolved Oxygen (mg/L)          | 9.14                                                                              |
| Temperature (Degrees Celsius)    | 14.7                                                                              |
| Redox (ORP mV)                   | 125.8                                                                             |
| parameters                       | @12:30, DTW:68.45, pH:6.64, temp:14.7, cond:2.678, turb:282, DO:9.14, redox:125.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:35, DTW:69.11, pH:6.66, temp:14.5, cond:2.722, turb:251, DO:8.68, redox:121.3**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 69.11                                                                             |
| pH                               | 6.66                                                                              |
| Conductivity (mS/cm)             | 2.722                                                                             |
| Turbidity (NTU)                  | 251                                                                               |
| Dissolved Oxygen (mg/L)          | 8.68                                                                              |
| Temperature (Degrees Celsius)    | 14.5                                                                              |
| Redox (ORP mV)                   | 121.3                                                                             |
| parameters                       | @12:35, DTW:69.11, pH:6.66, temp:14.5, cond:2.722, turb:251, DO:8.68, redox:121.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:43, DTW:70.45, pH:6.68, temp:14.7, cond:2.702, turb:193, DO:8.71, redox:116.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:43                                                                             |
| Minutes Elapsed between readings | 8                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 70.45                                                                             |
| pH                               | 6.68                                                                              |
| Conductivity (mS/cm)             | 2.702                                                                             |
| Turbidity (NTU)                  | 193                                                                               |
| Dissolved Oxygen (mg/L)          | 8.71                                                                              |
| Temperature (Degrees Celsius)    | 14.7                                                                              |
| Redox (ORP mV)                   | 116.1                                                                             |
| parameters                       | @12:43, DTW:70.45, pH:6.68, temp:14.7, cond:2.702, turb:193, DO:8.71, redox:116.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:45 |
| Color         | None  |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |      |
|--------------------------|------|
| Well Location            | P2   |
| Condition of Well        | Good |
| Well Locked at Arrival   | No   |
| Well Locked at Departure | No   |

Signature

A handwritten signature in black ink, reading "Daniel Stokard". The signature is written in a cursive style with a large, stylized "D" and "S".

Signed 2019-04-08 12:45:14 EDT



## 2019-06-12, CH-14-RO, CH-14-RO

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 11:01:55 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-12 11:23:00 EDT by Christine Gregg |
| Location                                                                                          | 42.74516026, -84.5848308                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-12                                 |
| Well Identification                                                                               | CH-14-RO                                   |
| Well ID                                                                                           | CH-14-RO                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Sunny, 70F                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 5.55          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 14.88         |
| Water Column                                                                                                                                                                                                                                           | 9.33          |
| Gallons in Well                                                                                                                                                                                                                                        | 1.52          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 12.38         |
| Purge Start                                                                                                                                                                                                                                            | 10:55         |

### @11:00, DTW:5.86, pH:7.13, temp:15.6, cond:0.75, turb:5.33, DO:0.3, redox:191.8

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 11:00                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 5.86                                                                            |
| Milliliters Purged (total)    | 1000                                                                            |
| pH                            | 7.13                                                                            |
| Conductivity (mS/cm)          | 0.75                                                                            |
| Turbidity (NTU)               | 5.33                                                                            |
| Dissolved Oxygen (mg/L)       | 0.3                                                                             |
| Temperature (Degrees Celsius) | 15.6                                                                            |
| Redox (ORP mV)                | 191.8                                                                           |
| parameters                    | @11:00, DTW:5.86, pH:7.13, temp:15.6, cond:0.75, turb:5.33, DO:0.3, redox:191.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:05, DTW:5.86, pH:7.14, temp:16.1, cond:0.76, turb:2.83, DO:0.21, redox:188**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:05                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 5.86                                                                           |
| Milliliters Purged (total)       | 2000                                                                           |
| pH                               | 7.14                                                                           |
| Conductivity (mS/cm)             | 0.76                                                                           |
| Turbidity (NTU)                  | 2.83                                                                           |
| Dissolved Oxygen (mg/L)          | 0.21                                                                           |
| Temperature (Degrees Celsius)    | 16.1                                                                           |
| Redox (ORP mV)                   | 188                                                                            |
| parameters                       | @11:05, DTW:5.86, pH:7.14, temp:16.1, cond:0.76, turb:2.83, DO:0.21, redox:188 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:10, DTW:5.86, pH:7.14, temp:16.1, cond:0.76, turb:2.12, DO:0.17, redox:185.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 5.86                                                                             |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.14                                                                             |
| Conductivity (mS/cm)             | 0.76                                                                             |
| Turbidity (NTU)                  | 2.12                                                                             |
| Dissolved Oxygen (mg/L)          | 0.17                                                                             |
| Temperature (Degrees Celsius)    | 16.1                                                                             |
| Redox (ORP mV)                   | 185.5                                                                            |
| parameters                       | @11:10, DTW:5.86, pH:7.14, temp:16.1, cond:0.76, turb:2.12, DO:0.17, redox:185.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:15, DTW:5.86, pH:7.13, temp:16, cond:0.75, turb:1.8, DO:0.15, redox:182.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 5.86  |
| Milliliters Purged (total)       | 4000  |
| pH                               | 7.13  |
| Conductivity (mS/cm)             | 0.75  |
| Turbidity (NTU)                  | 1.8   |
| Dissolved Oxygen (mg/L)          | 0.15  |
| Temperature (Degrees Celsius)    | 16    |
| Redox (ORP mV)                   | 182.4 |

parameters

@11:15, DTW:5.86, pH:7.13, temp:16, cond:0.75, turb:1.8, DO:0.15, redox:182.4

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:20, DTW:5.86, pH:7.13, temp:16, cond:0.75, turb:1.61, DO:0.15, redox:181**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 11:20                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 5.86                                                                         |
| Milliliters Purged (total)       | 5000                                                                         |
| pH                               | 7.13                                                                         |
| Conductivity (mS/cm)             | 0.75                                                                         |
| Turbidity (NTU)                  | 1.61                                                                         |
| Dissolved Oxygen (mg/L)          | 0.15                                                                         |
| Temperature (Degrees Celsius)    | 16                                                                           |
| Redox (ORP mV)                   | 181                                                                          |
| parameters                       | @11:20, DTW:5.86, pH:7.13, temp:16, cond:0.75, turb:1.61, DO:0.15, redox:181 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 11:35 |
|-----------|-------|

## Sample Information

|               |                                |
|---------------|--------------------------------|
| Sample Time   | 11:25                          |
| Color         | Clear/slightly yellowish green |
| Notable odors | None                           |

## Metals, Total

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | Metals, Total  |
| Container Type       | 125 mL Plastic |
| Number of Containers | 1              |
| Preservative         | HNO3           |

## Hexavalent Chromium

|                      |                     |
|----------------------|---------------------|
| Constituent Sampled  | Hexavalent Chromium |
| Container Type       | 125 mL Plastic      |
| Number of Containers | 1                   |
| Preservative         | None                |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information



|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |
| Signature                |      |

A handwritten signature in black ink, appearing to read "A. W. H.", is centered on the page.

Signed 2019-06-12 15:04:37 UTC

## 2019-12-06, CH-14-RO

|                                                                                                   |                                           |
|---------------------------------------------------------------------------------------------------|-------------------------------------------|
| Created                                                                                           | 2019-12-06 13:40:20 UTC by Melissa Weaver |
| Updated                                                                                           | 2019-12-06 21:42:07 UTC by Melissa Weaver |
| Location                                                                                          | 42.7444147691529, -84.5827043988598       |
| Project Number                                                                                    | 30006870                                  |
| Project Name / Location                                                                           | RACER Lansing, MI                         |
| Sampler Name                                                                                      | Melissa Weaver                            |
| Date                                                                                              | 2019-12-06                                |
| Well ID                                                                                           | CH-14-RO                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                       |
| Weather                                                                                           | 33 cloudy                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 7.38          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 14.8          |
| Water Column                                                                                                                                                                                                                                           | 7.42          |
| Gallons in Well                                                                                                                                                                                                                                        | 1.21          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 12.3          |
| Purge Start                                                                                                                                                                                                                                            | 14:13         |

### @14:20, DTW:7.79, pH:7.29, temp:11.7, cond:0.8, turb:0.02, DO:0.49, redox:80.9

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 14:20                                                                          |
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 7.79                                                                           |
| pH                            | 7.29                                                                           |
| Conductivity (mS/cm)          | 0.8                                                                            |
| Turbidity (NTU)               | 0.02                                                                           |
| Dissolved Oxygen (mg/L)       | 0.49                                                                           |
| Temperature (Degrees Celsius) | 11.7                                                                           |
| Redox (ORP mV)                | 80.9                                                                           |
| parameters                    | @14:20, DTW:7.79, pH:7.29, temp:11.7, cond:0.8, turb:0.02, DO:0.49, redox:80.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:25, DTW:7.81, pH:7.17, temp:11.8, cond:0.8, turb:0.02, DO:0.28, redox:72.2

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:25 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 7.81                                                                           |
| pH                            | 7.17                                                                           |
| Conductivity (mS/cm)          | 0.8                                                                            |
| Turbidity (NTU)               | 0.02                                                                           |
| Dissolved Oxygen (mg/L)       | 0.28                                                                           |
| Temperature (Degrees Celsius) | 11.8                                                                           |
| Redox (ORP mV)                | 72.2                                                                           |
| parameters                    | @14:25, DTW:7.81, pH:7.17, temp:11.8, cond:0.8, turb:0.02, DO:0.28, redox:72.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:30, DTW:7.89, pH:7.13, temp:12, cond:0.8, turb:0.02, DO:0.19, redox:69.2**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 14:30                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 7.89                                                                         |
| pH                               | 7.13                                                                         |
| Conductivity (mS/cm)             | 0.8                                                                          |
| Turbidity (NTU)                  | 0.02                                                                         |
| Dissolved Oxygen (mg/L)          | 0.19                                                                         |
| Temperature (Degrees Celsius)    | 12                                                                           |
| Redox (ORP mV)                   | 69.2                                                                         |
| parameters                       | @14:30, DTW:7.89, pH:7.13, temp:12, cond:0.8, turb:0.02, DO:0.19, redox:69.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:35, DTW:7.94, pH:7.14, temp:12.3, cond:0.8, turb:0.02, DO:0.19, redox:71.4**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:35                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 7.94                                                                           |
| pH                               | 7.14                                                                           |
| Conductivity (mS/cm)             | 0.8                                                                            |
| Turbidity (NTU)                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)          | 0.19                                                                           |
| Temperature (Degrees Celsius)    | 12.3                                                                           |
| Redox (ORP mV)                   | 71.4                                                                           |
| parameters                       | @14:35, DTW:7.94, pH:7.14, temp:12.3, cond:0.8, turb:0.02, DO:0.19, redox:71.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:40, DTW:7.96, pH:7.15, temp:12.3, cond:0.79, turb:0.02, DO:0.19, redox:68.7**

|              |       |
|--------------|-------|
| Reading Time | 14:40 |
|--------------|-------|



|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 7.96                                                                            |
| pH                               | 7.15                                                                            |
| Conductivity (mS/cm)             | 0.79                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.19                                                                            |
| Temperature (Degrees Celsius)    | 12.3                                                                            |
| Redox (ORP mV)                   | 68.7                                                                            |
| parameters                       | @14:40, DTW:7.96, pH:7.15, temp:12.3, cond:0.79, turb:0.02, DO:0.19, redox:68.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:45, DTW:7.96, pH:7.15, temp:12.3, cond:0.79, turb:0.02, DO:0.19, redox:68.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 7.96                                                                            |
| pH                               | 7.15                                                                            |
| Conductivity (mS/cm)             | 0.79                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.19                                                                            |
| Temperature (Degrees Celsius)    | 12.3                                                                            |
| Redox (ORP mV)                   | 68.7                                                                            |
| parameters                       | @14:45, DTW:7.96, pH:7.15, temp:12.3, cond:0.79, turb:0.02, DO:0.19, redox:68.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:50, DTW:7.81, pH:7.15, temp:11.2, cond:0.79, turb:0.02, DO:0.17, redox:73**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:50                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 7.81                                                                          |
| pH                               | 7.15                                                                          |
| Conductivity (mS/cm)             | 0.79                                                                          |
| Turbidity (NTU)                  | 0.02                                                                          |
| Dissolved Oxygen (mg/L)          | 0.17                                                                          |
| Temperature (Degrees Celsius)    | 11.2                                                                          |
| Redox (ORP mV)                   | 73                                                                            |
| parameters                       | @14:50, DTW:7.81, pH:7.15, temp:11.2, cond:0.79, turb:0.02, DO:0.17, redox:73 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 14:50 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:50 |
| Color         | Green |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 1              |
| Preservative         | None           |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |
| Signature                |         |

A handwritten signature in black ink, consisting of stylized, cursive letters that appear to read 'ML'.

Signed 2019-12-06 21:42:05 UTC

## 2019-06-05, MW-01(2), MW-01(2)

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-05 12:17:47 EDT by Jessica Fransted |
| Updated                                                                                           | 2019-06-05 13:56:49 EDT by Christine Gregg  |
| Location                                                                                          | 42.7348445, -84.5864865                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-05                                  |
| Well Identification                                                                               | MW-01(2)                                    |
| Well ID                                                                                           | MW-01(2)                                    |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                         |
| Weather                                                                                           | Cloudy 70s                                  |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 6.57          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 16            |
| Water Column                                                                                                                                                                                                                                              | 9.43          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.53          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 10            |

### @12:50, DTW:6.57, pH:6.98, temp:13.8, cond:4.32, turb:0.02, DO:0.7, redox:112.9

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 12:50                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 6.57                                                                            |
| pH                            | 6.98                                                                            |
| Conductivity (mS/cm)          | 4.32                                                                            |
| Turbidity (NTU)               | 0.02                                                                            |
| Dissolved Oxygen (mg/L)       | 0.7                                                                             |
| Temperature (Degrees Celsius) | 13.8                                                                            |
| Redox (ORP mV)                | 112.9                                                                           |
| parameters                    | @12:50, DTW:6.57, pH:6.98, temp:13.8, cond:4.32, turb:0.02, DO:0.7, redox:112.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:55, DTW:6.57, pH:6.96, temp:13.8, cond:4.25, turb:0.02, DO:0.39, redox:85.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:55 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 6.57                                                                            |
| pH                            | 6.96                                                                            |
| Conductivity (mS/cm)          | 4.25                                                                            |
| Turbidity (NTU)               | 0.02                                                                            |
| Dissolved Oxygen (mg/L)       | 0.39                                                                            |
| Temperature (Degrees Celsius) | 13.8                                                                            |
| Redox (ORP mV)                | 85.3                                                                            |
| parameters                    | @12:55, DTW:6.57, pH:6.96, temp:13.8, cond:4.25, turb:0.02, DO:0.39, redox:85.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:00, DTW:6.57, pH:6.96, temp:13.8, cond:4.04, turb:0.02, DO:0.82, redox:70.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 6.57                                                                            |
| pH                               | 6.96                                                                            |
| Conductivity (mS/cm)             | 4.04                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.82                                                                            |
| Temperature (Degrees Celsius)    | 13.8                                                                            |
| Redox (ORP mV)                   | 70.3                                                                            |
| parameters                       | @13:00, DTW:6.57, pH:6.96, temp:13.8, cond:4.04, turb:0.02, DO:0.82, redox:70.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:05, DTW:6.57, pH:6.94, temp:14, cond:4.36, turb:0.02, DO:0.27, redox:38.8**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 13:05                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 6.57                                                                          |
| pH                               | 6.94                                                                          |
| Conductivity (mS/cm)             | 4.36                                                                          |
| Turbidity (NTU)                  | 0.02                                                                          |
| Dissolved Oxygen (mg/L)          | 0.27                                                                          |
| Temperature (Degrees Celsius)    | 14                                                                            |
| Redox (ORP mV)                   | 38.8                                                                          |
| parameters                       | @13:05, DTW:6.57, pH:6.94, temp:14, cond:4.36, turb:0.02, DO:0.27, redox:38.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:10, DTW:6.57, pH:6.94, temp:14, cond:4.37, turb:0.02, DO:0.23, redox:34.8**

|              |       |
|--------------|-------|
| Reading Time | 13:10 |
|--------------|-------|



|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 6.57                                                                          |
| pH                               | 6.94                                                                          |
| Conductivity (mS/cm)             | 4.37                                                                          |
| Turbidity (NTU)                  | 0.02                                                                          |
| Dissolved Oxygen (mg/L)          | 0.23                                                                          |
| Temperature (Degrees Celsius)    | 14                                                                            |
| Redox (ORP mV)                   | 34.8                                                                          |
| parameters                       | @13:10, DTW:6.57, pH:6.94, temp:14, cond:4.37, turb:0.02, DO:0.23, redox:34.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:15, DTW:6.57, pH:6.95, temp:14, cond:4.37, turb:0.02, DO:0.17, redox:29.3**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 13:15                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 6.57                                                                          |
| pH                               | 6.95                                                                          |
| Conductivity (mS/cm)             | 4.37                                                                          |
| Turbidity (NTU)                  | 0.02                                                                          |
| Dissolved Oxygen (mg/L)          | 0.17                                                                          |
| Temperature (Degrees Celsius)    | 14                                                                            |
| Redox (ORP mV)                   | 29.3                                                                          |
| parameters                       | @13:15, DTW:6.57, pH:6.95, temp:14, cond:4.37, turb:0.02, DO:0.17, redox:29.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:20, DTW:6.57, pH:6.95, temp:14, cond:4.38, turb:0.02, DO:0.16, redox:27.2**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 6.57                                                                          |
| pH                               | 6.95                                                                          |
| Conductivity (mS/cm)             | 4.38                                                                          |
| Turbidity (NTU)                  | 0.02                                                                          |
| Dissolved Oxygen (mg/L)          | 0.16                                                                          |
| Temperature (Degrees Celsius)    | 14                                                                            |
| Redox (ORP mV)                   | 27.2                                                                          |
| parameters                       | @13:20, DTW:6.57, pH:6.95, temp:14, cond:4.38, turb:0.02, DO:0.16, redox:27.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:25, DTW:6.57, pH:6.95, temp:14.1, cond:4.38, turb:0.02, DO:0.14, redox:21.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 6.57                                                                            |
| pH                               | 6.95                                                                            |
| Conductivity (mS/cm)             | 4.38                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.14                                                                            |
| Temperature (Degrees Celsius)    | 14.1                                                                            |
| Redox (ORP mV)                   | 21.1                                                                            |
| parameters                       | @13:25, DTW:6.57, pH:6.95, temp:14.1, cond:4.38, turb:0.02, DO:0.14, redox:21.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | No      |
| Well Locked at Departure | No      |
| Signature                |         |



Signed 2019-06-05 16:19:00 UTC

## 2019-06-11, MW-02-02(3), MW-02-02(3)

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-11 15:14:07 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-11 15:48:59 EDT by Christine Gregg |
| Location                                                                                          | 42.74571342, -84.58598332                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-11                                 |
| Well Identification                                                                               | MW-02-02(3)                                |
| Well ID                                                                                           | MW-02-02(3)                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | Dup-09                                     |
| Weather                                                                                           | Sunny, 75F                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 61.05         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 83.8          |
| Water Column                                                                                                                                                                                                                                                 | 22.75         |
| Gallons in Well                                                                                                                                                                                                                                              | 3.7           |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                  | 15:15         |

### @15:20, DTW:63.02, pH:6.47, temp:14.2, cond:5.3, turb:5.88, DO:0.91, redox:20.4

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 15:20                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 63.02                                                                           |
| Milliliters Purged (total)    | 1000                                                                            |
| pH                            | 6.47                                                                            |
| Conductivity (mS/cm)          | 5.3                                                                             |
| Turbidity (NTU)               | 5.88                                                                            |
| Dissolved Oxygen (mg/L)       | 0.91                                                                            |
| Temperature (Degrees Celsius) | 14.2                                                                            |
| Redox (ORP mV)                | 20.4                                                                            |
| parameters                    | @15:20, DTW:63.02, pH:6.47, temp:14.2, cond:5.3, turb:5.88, DO:0.91, redox:20.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:25, DTW:63.02, pH:6.47, temp:14, cond:5.23, turb:3.97, DO:0.4, redox:16.1

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 15:25                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 63.02                                                                         |
| Milliliters Purged (total)       | 2000                                                                          |
| pH                               | 6.47                                                                          |
| Conductivity (mS/cm)             | 5.23                                                                          |
| Turbidity (NTU)                  | 3.97                                                                          |
| Dissolved Oxygen (mg/L)          | 0.4                                                                           |
| Temperature (Degrees Celsius)    | 14                                                                            |
| Redox (ORP mV)                   | 16.1                                                                          |
| parameters                       | @15:25, DTW:63.02, pH:6.47, temp:14, cond:5.23, turb:3.97, DO:0.4, redox:16.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:30, DTW:63.02, pH:6.47, temp:13.8, cond:5.22, turb:3.04, DO:1.78, redox:17.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 63.02                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 6.47                                                                             |
| Conductivity (mS/cm)             | 5.22                                                                             |
| Turbidity (NTU)                  | 3.04                                                                             |
| Dissolved Oxygen (mg/L)          | 1.78                                                                             |
| Temperature (Degrees Celsius)    | 13.8                                                                             |
| Redox (ORP mV)                   | 17.4                                                                             |
| parameters                       | @15:30, DTW:63.02, pH:6.47, temp:13.8, cond:5.22, turb:3.04, DO:1.78, redox:17.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:35, DTW:63.02, pH:6.46, temp:14.2, cond:5.27, turb:2.98, DO:1.69, redox:16.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 63.02                                                                            |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 6.46                                                                             |
| Conductivity (mS/cm)             | 5.27                                                                             |
| Turbidity (NTU)                  | 2.98                                                                             |
| Dissolved Oxygen (mg/L)          | 1.69                                                                             |
| Temperature (Degrees Celsius)    | 14.2                                                                             |
| Redox (ORP mV)                   | 16.1                                                                             |
| parameters                       | @15:35, DTW:63.02, pH:6.46, temp:14.2, cond:5.27, turb:2.98, DO:1.69, redox:16.1 |



Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:40, DTW:63.02, pH:6.47, temp:14, cond:5.24, turb:2.39, DO:0.99, redox:14.4**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:40                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 63.02                                                                          |
| Milliliters Purged (total)       | 5000                                                                           |
| pH                               | 6.47                                                                           |
| Conductivity (mS/cm)             | 5.24                                                                           |
| Turbidity (NTU)                  | 2.39                                                                           |
| Dissolved Oxygen (mg/L)          | 0.99                                                                           |
| Temperature (Degrees Celsius)    | 14                                                                             |
| Redox (ORP mV)                   | 14.4                                                                           |
| parameters                       | @15:40, DTW:63.02, pH:6.47, temp:14, cond:5.24, turb:2.39, DO:0.99, redox:14.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 15:50 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:45 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 6           |
| Preservative         | HCL         |

## Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | No   |
| Well Locked at Departure | No   |

Signature

A handwritten signature in black ink, appearing to be 'Andrew' or similar, written in a cursive style.

Signed 2019-06-11 19:16:50 UTC

---

## 2019-06-10, MW-02-03(6), MW-02-03(6)

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 13:24:53 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-10 14:30:47 EDT by Christine Gregg |
| Location                                                                                          | 42.73765862, -84.58064396                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-10                                 |
| Well Identification                                                                               | MW-02-03(6)                                |
| Well ID                                                                                           | MW-02-03(6)                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy Windy 60's                          |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 30.74         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 44.4          |
| Water Column                                                                                                                                                                                                                                              | 13.66         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.22          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 42            |
| Purge Start                                                                                                                                                                                                                                               | 13:25         |

### @13:25, DTW:30.74, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 13:25                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 30.74                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @13:25, DTW:30.74, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:30, DTW:30.99, pH:6.76, temp:16.3, cond:9.43, turb:243, DO:1.67, redox:-61.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 30.99 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.76  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 9.43                                                                             |
| Turbidity (NTU)               | 243                                                                              |
| Dissolved Oxygen (mg/L)       | 1.67                                                                             |
| Temperature (Degrees Celsius) | 16.3                                                                             |
| Redox (ORP mV)                | -61.1                                                                            |
| parameters                    | @13:30, DTW:30.99, pH:6.76, temp:16.3, cond:9.43, turb:243, DO:1.67, redox:-61.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:35, DTW:31.24, pH:6.74, temp:16.4, cond:9.47, turb:156, DO:0.95, redox:-64**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 31.24                                                                          |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 6.74                                                                           |
| Conductivity (mS/cm)             | 9.47                                                                           |
| Turbidity (NTU)                  | 156                                                                            |
| Dissolved Oxygen (mg/L)          | 0.95                                                                           |
| Temperature (Degrees Celsius)    | 16.4                                                                           |
| Redox (ORP mV)                   | -64                                                                            |
| parameters                       | @13:35, DTW:31.24, pH:6.74, temp:16.4, cond:9.47, turb:156, DO:0.95, redox:-64 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:31.4, pH:6.74, temp:16.1, cond:9.48, turb:103, DO:0.58, redox:-66.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 31.4                                                                            |
| Milliliters Purged (total)       | 1500                                                                            |
| pH                               | 6.74                                                                            |
| Conductivity (mS/cm)             | 9.48                                                                            |
| Turbidity (NTU)                  | 103                                                                             |
| Dissolved Oxygen (mg/L)          | 0.58                                                                            |
| Temperature (Degrees Celsius)    | 16.1                                                                            |
| Redox (ORP mV)                   | -66.7                                                                           |
| parameters                       | @13:40, DTW:31.4, pH:6.74, temp:16.1, cond:9.48, turb:103, DO:0.58, redox:-66.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:45, DTW:31.57, pH:6.74, temp:16.1, cond:9.47, turb:92.1, DO:0.57, redox:-67.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:45 |
| Minutes Elapsed between readings | 5     |



|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                               |
| Depth to Water (ft)           | 31.57                                                                             |
| Milliliters Purged (total)    | 2000                                                                              |
| pH                            | 6.74                                                                              |
| Conductivity (mS/cm)          | 9.47                                                                              |
| Turbidity (NTU)               | 92.1                                                                              |
| Dissolved Oxygen (mg/L)       | 0.57                                                                              |
| Temperature (Degrees Celsius) | 16.1                                                                              |
| Redox (ORP mV)                | -67.5                                                                             |
| parameters                    | @13:45, DTW:31.57, pH:6.74, temp:16.1, cond:9.47, turb:92.1, DO:0.57, redox:-67.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:50, DTW:31.7, pH:6.74, temp:16.1, cond:9.48, turb:83.1, DO:0.54, redox:-69.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:50                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 31.7                                                                             |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 6.74                                                                             |
| Conductivity (mS/cm)             | 9.48                                                                             |
| Turbidity (NTU)                  | 83.1                                                                             |
| Dissolved Oxygen (mg/L)          | 0.54                                                                             |
| Temperature (Degrees Celsius)    | 16.1                                                                             |
| Redox (ORP mV)                   | -69.3                                                                            |
| parameters                       | @13:50, DTW:31.7, pH:6.74, temp:16.1, cond:9.48, turb:83.1, DO:0.54, redox:-69.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:55, DTW:31.88, pH:6.74, temp:16.1, cond:9.48, turb:71.1, DO:0.53, redox:-70.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:55                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 31.88                                                                             |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 6.74                                                                              |
| Conductivity (mS/cm)             | 9.48                                                                              |
| Turbidity (NTU)                  | 71.1                                                                              |
| Dissolved Oxygen (mg/L)          | 0.53                                                                              |
| Temperature (Degrees Celsius)    | 16.1                                                                              |
| Redox (ORP mV)                   | -70.1                                                                             |
| parameters                       | @13:55, DTW:31.88, pH:6.74, temp:16.1, cond:9.48, turb:71.1, DO:0.53, redox:-70.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:00, DTW:32.02, pH:6.75, temp:16.1, cond:9.48, turb:63.2, DO:0.57, redox:-71.6**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:00                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 32.02                                                                             |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 6.75                                                                              |
| Conductivity (mS/cm)             | 9.48                                                                              |
| Turbidity (NTU)                  | 63.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.57                                                                              |
| Temperature (Degrees Celsius)    | 16.1                                                                              |
| Redox (ORP mV)                   | -71.6                                                                             |
| parameters                       | @14:00, DTW:32.02, pH:6.75, temp:16.1, cond:9.48, turb:63.2, DO:0.57, redox:-71.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:05, DTW:32.17, pH:6.75, temp:16.2, cond:9.47, turb:51.8, DO:0.55, redox:-71.6**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:05                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 32.17                                                                             |
| Milliliters Purged (total)       | 4000                                                                              |
| pH                               | 6.75                                                                              |
| Conductivity (mS/cm)             | 9.47                                                                              |
| Turbidity (NTU)                  | 51.8                                                                              |
| Dissolved Oxygen (mg/L)          | 0.55                                                                              |
| Temperature (Degrees Celsius)    | 16.2                                                                              |
| Redox (ORP mV)                   | -71.6                                                                             |
| parameters                       | @14:05, DTW:32.17, pH:6.75, temp:16.2, cond:9.47, turb:51.8, DO:0.55, redox:-71.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:10, DTW:32.29, pH:6.75, temp:16.3, cond:9.46, turb:38.5, DO:0.54, redox:-72.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 32.29 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.75  |
| Conductivity (mS/cm)             | 9.46  |
| Turbidity (NTU)                  | 38.5  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.54                                                                              |
| Temperature (Degrees Celsius) | 16.3                                                                              |
| Redox (ORP mV)                | -72.8                                                                             |
| parameters                    | @14:10, DTW:32.29, pH:6.75, temp:16.3, cond:9.46, turb:38.5, DO:0.54, redox:-72.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:15, DTW:32.39, pH:6.75, temp:16.3, cond:9.47, turb:37.1, DO:0.53, redox:-73.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 32.39                                                                             |
| Milliliters Purged (total)       | 5000                                                                              |
| pH                               | 6.75                                                                              |
| Conductivity (mS/cm)             | 9.47                                                                              |
| Turbidity (NTU)                  | 37.1                                                                              |
| Dissolved Oxygen (mg/L)          | 0.53                                                                              |
| Temperature (Degrees Celsius)    | 16.3                                                                              |
| Redox (ORP mV)                   | -73.4                                                                             |
| parameters                       | @14:15, DTW:32.39, pH:6.75, temp:16.3, cond:9.47, turb:37.1, DO:0.53, redox:-73.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:20, DTW:32.47, pH:6.75, temp:16.2, cond:9.47, turb:36.1, DO:0.52, redox:-74.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 32.47                                                                             |
| Milliliters Purged (total)       | 5500                                                                              |
| pH                               | 6.75                                                                              |
| Conductivity (mS/cm)             | 9.47                                                                              |
| Turbidity (NTU)                  | 36.1                                                                              |
| Dissolved Oxygen (mg/L)          | 0.52                                                                              |
| Temperature (Degrees Celsius)    | 16.2                                                                              |
| Redox (ORP mV)                   | -74.1                                                                             |
| parameters                       | @14:20, DTW:32.47, pH:6.75, temp:16.2, cond:9.47, turb:36.1, DO:0.52, redox:-74.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 14:20       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 5500        |
| Well Volumes Purged           | 0.65        |

## **Sample Information**

|               |       |
|---------------|-------|
| Sample Time   | 14:20 |
| Color         | Clear |
| Notable odors | No    |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

### Well Information

|                          |                        |
|--------------------------|------------------------|
| Well Location            | West center of Plant 6 |
| Condition of Well        | Poor                   |
| Well Locked at Arrival   | No                     |
| Well Locked at Departure | No                     |

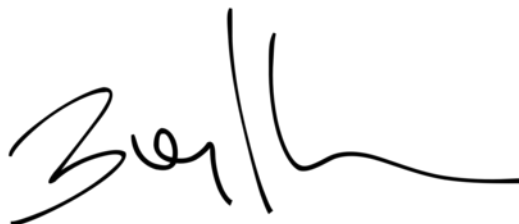
Photo of Well



|          |                                                                    |
|----------|--------------------------------------------------------------------|
| Comments | I tab broken and 1 tab stripped, didn't meet drawdown requirements |
|----------|--------------------------------------------------------------------|



Signature

A handwritten signature in black ink, appearing to be 'Berl' followed by a long horizontal flourish.

Signed 2019-06-10 17:27:21 UTC

---

**2019-06-11, MW-02-04(3), MW-02-04(3)**

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-11 13:28:17 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-11 13:56:15 EDT by Christine Gregg |
| Location                                                                                          | 42.7463276, -84.58472922                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-11                                 |
| Well Identification                                                                               | MW-02-04(3)                                |
| Well ID                                                                                           | MW-02-04(3)                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Sunny, 75F                                 |

**Evacuation Details**

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 59.16         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 84.03         |
| Water Column                                                                                                                                                                                                                                           | 24.87         |
| Gallons in Well                                                                                                                                                                                                                                        | 4.04          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Bladder       |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 81.53         |
| Purge Start                                                                                                                                                                                                                                            | 13:30         |

**@13:35, DTW:60.75, pH:6.77, temp:15, cond:5.62, turb:7.52, DO:0.43, redox:-54.8**

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 13:35                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 60.75                                                                           |
| Milliliters Purged (total)    | 1000                                                                            |
| pH                            | 6.77                                                                            |
| Conductivity (mS/cm)          | 5.62                                                                            |
| Turbidity (NTU)               | 7.52                                                                            |
| Dissolved Oxygen (mg/L)       | 0.43                                                                            |
| Temperature (Degrees Celsius) | 15                                                                              |
| Redox (ORP mV)                | -54.8                                                                           |
| parameters                    | @13:35, DTW:60.75, pH:6.77, temp:15, cond:5.62, turb:7.52, DO:0.43, redox:-54.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:40, DTW:60.75, pH:6.77, temp:15, cond:5.57, turb:2.25, DO:0.43, redox:-55.6**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 60.75                                                                           |
| Milliliters Purged (total)       | 2000                                                                            |
| pH                               | 6.77                                                                            |
| Conductivity (mS/cm)             | 5.57                                                                            |
| Turbidity (NTU)                  | 2.25                                                                            |
| Dissolved Oxygen (mg/L)          | 0.43                                                                            |
| Temperature (Degrees Celsius)    | 15                                                                              |
| Redox (ORP mV)                   | -55.6                                                                           |
| parameters                       | @13:40, DTW:60.75, pH:6.77, temp:15, cond:5.57, turb:2.25, DO:0.43, redox:-55.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:45, DTW:60.75, pH:6.78, temp:15, cond:5.51, turb:2.03, DO:0.5, redox:-53.2**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:45                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 60.75                                                                          |
| Milliliters Purged (total)       | 3000                                                                           |
| pH                               | 6.78                                                                           |
| Conductivity (mS/cm)             | 5.51                                                                           |
| Turbidity (NTU)                  | 2.03                                                                           |
| Dissolved Oxygen (mg/L)          | 0.5                                                                            |
| Temperature (Degrees Celsius)    | 15                                                                             |
| Redox (ORP mV)                   | -53.2                                                                          |
| parameters                       | @13:45, DTW:60.75, pH:6.78, temp:15, cond:5.51, turb:2.03, DO:0.5, redox:-53.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:50, DTW:60.75, pH:6.78, temp:15, cond:5.53, turb:1.63, DO:0.52, redox:-53.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 60.75 |
| Milliliters Purged (total)       | 4000  |
| pH                               | 6.78  |
| Conductivity (mS/cm)             | 5.53  |
| Turbidity (NTU)                  | 1.63  |
| Dissolved Oxygen (mg/L)          | 0.52  |
| Temperature (Degrees Celsius)    | 15    |
| Redox (ORP mV)                   | -53.4 |

parameters

@13:50, DTW:60.75, pH:6.78, temp:15, cond:5.53, turb:1.63, DO:0.52, redox:-53.4

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:55, DTW:60.75, pH:6.78, temp:15, cond:5.52, turb:1.44, DO:0.51, redox:-53.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:55                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 60.75                                                                           |
| Milliliters Purged (total)       | 5000                                                                            |
| pH                               | 6.78                                                                            |
| Conductivity (mS/cm)             | 5.52                                                                            |
| Turbidity (NTU)                  | 1.44                                                                            |
| Dissolved Oxygen (mg/L)          | 0.51                                                                            |
| Temperature (Degrees Celsius)    | 15                                                                              |
| Redox (ORP mV)                   | -53.7                                                                           |
| parameters                       | @13:55, DTW:60.75, pH:6.78, temp:15, cond:5.52, turb:1.44, DO:0.51, redox:-53.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 14:05 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:00 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Fair |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |



Signature

A handwritten signature in black ink, appearing to be 'André' followed by a stylized flourish.

Signed 2019-06-11 17:30:19 UTC

---

## 2019-12-06, MW-02-04(3)

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-06 17:03:46 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-06 17:33:46 UTC by Austin Westhuis |
| Location                                                                                          | 42.7463498572286, -84.5847546123756        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-06                                 |
| Well ID                                                                                           | MW-02-04(3)                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | NA                                         |
| Weather                                                                                           | Cloudy, 35F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 57.75         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 84.55         |
| Water Column                                                                                                                                                                                                                                              | 26.8          |
| Gallons in Well                                                                                                                                                                                                                                           | 4.35          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 82.05         |
| Purge Start                                                                                                                                                                                                                                               | 12:05         |

### @12:10, DTW:57.75, pH:6.87, temp:12.2, cond:5.08, turb:12.6, DO:3.73, redox:-32.8

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 12:10                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 57.75                                                                             |
| Milliliters Purged (total)    | 1000                                                                              |
| pH                            | 6.87                                                                              |
| Conductivity (mS/cm)          | 5.08                                                                              |
| Turbidity (NTU)               | 12.6                                                                              |
| Dissolved Oxygen (mg/L)       | 3.73                                                                              |
| Temperature (Degrees Celsius) | 12.2                                                                              |
| Redox (ORP mV)                | -32.8                                                                             |
| parameters                    | @12:10, DTW:57.75, pH:6.87, temp:12.2, cond:5.08, turb:12.6, DO:3.73, redox:-32.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:15, DTW:59.55, pH:6.87, temp:12.1, cond:5.09, turb:8.8, DO:3.8, redox:-32.7

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 59.55                                                                           |
| Milliliters Purged (total)       | 2000                                                                            |
| pH                               | 6.87                                                                            |
| Conductivity (mS/cm)             | 5.09                                                                            |
| Turbidity (NTU)                  | 8.8                                                                             |
| Dissolved Oxygen (mg/L)          | 3.8                                                                             |
| Temperature (Degrees Celsius)    | 12.1                                                                            |
| Redox (ORP mV)                   | -32.7                                                                           |
| parameters                       | @12:15, DTW:59.55, pH:6.87, temp:12.1, cond:5.09, turb:8.8, DO:3.8, redox:-32.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:20, DTW:59.55, pH:6.85, temp:12.3, cond:5.18, turb:4.32, DO:3.35, redox:-34.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 59.55                                                                             |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 6.85                                                                              |
| Conductivity (mS/cm)             | 5.18                                                                              |
| Turbidity (NTU)                  | 4.32                                                                              |
| Dissolved Oxygen (mg/L)          | 3.35                                                                              |
| Temperature (Degrees Celsius)    | 12.3                                                                              |
| Redox (ORP mV)                   | -34.5                                                                             |
| parameters                       | @12:20, DTW:59.55, pH:6.85, temp:12.3, cond:5.18, turb:4.32, DO:3.35, redox:-34.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:25, DTW:59.55, pH:6.85, temp:12.4, cond:5.19, turb:2.38, DO:3.2, redox:-34.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 59.55                                                                            |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 6.85                                                                             |
| Conductivity (mS/cm)             | 5.19                                                                             |
| Turbidity (NTU)                  | 2.38                                                                             |
| Dissolved Oxygen (mg/L)          | 3.2                                                                              |
| Temperature (Degrees Celsius)    | 12.4                                                                             |
| Redox (ORP mV)                   | -34.7                                                                            |
| parameters                       | @12:25, DTW:59.55, pH:6.85, temp:12.4, cond:5.19, turb:2.38, DO:3.2, redox:-34.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:30, DTW:59.55, pH:6.85, temp:11.9, cond:5.21, turb:2.3, DO:3.22, redox:-36.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 59.55                                                                            |
| Milliliters Purged (total)       | 5000                                                                             |
| pH                               | 6.85                                                                             |
| Conductivity (mS/cm)             | 5.21                                                                             |
| Turbidity (NTU)                  | 2.3                                                                              |
| Dissolved Oxygen (mg/L)          | 3.22                                                                             |
| Temperature (Degrees Celsius)    | 11.9                                                                             |
| Redox (ORP mV)                   | -36.1                                                                            |
| parameters                       | @12:30, DTW:59.55, pH:6.85, temp:11.9, cond:5.21, turb:2.3, DO:3.22, redox:-36.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 12:40 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:35 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |                                                                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Condition of Well        | Flush mount pad could be replaced. The cover will no longer bolt down, but the j-plug is in great shape and provides a nice seal. |
| Well Locked at Arrival   | Yes                                                                                                                               |
| Well Locked at Departure | Yes                                                                                                                               |



Signature

A handwritten signature in black ink, appearing to be 'Andrew', with a long horizontal stroke extending to the right.

Signed 2019-12-06 17:05:38 UTC

---

## 2019-06-10, MW-03-04, MW-03-04

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 09:53:32 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-10 10:27:19 EDT by Christine Gregg |
| Location                                                                                          | 42.73819406, -84.58162364                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-10                                 |
| Well Identification                                                                               | MW-03-04                                   |
| Well ID                                                                                           | MW-03-04                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy 60's                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 22.2          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 42.65         |
| Water Column                                                                                                                                                                                                                                              | 20.45         |
| Gallons in Well                                                                                                                                                                                                                                           | 3.32          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 40            |
| Purge Start                                                                                                                                                                                                                                               | 09:35         |

### @09:35, DTW:22.2, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 09:35                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 22.2                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @09:35, DTW:22.2, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:40, DTW:22.67, pH:6.88, temp:15.4, cond:0.77, turb:18.1, DO:0.56, redox:177.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 22.67 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.88  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.77                                                                              |
| Turbidity (NTU)               | 18.1                                                                              |
| Dissolved Oxygen (mg/L)       | 0.56                                                                              |
| Temperature (Degrees Celsius) | 15.4                                                                              |
| Redox (ORP mV)                | 177.5                                                                             |
| parameters                    | @09:40, DTW:22.67, pH:6.88, temp:15.4, cond:0.77, turb:18.1, DO:0.56, redox:177.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:45, DTW:22.72, pH:6.97, temp:15.3, cond:0.76, turb:15.2, DO:0.43, redox:161.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 22.72                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 6.97                                                                              |
| Conductivity (mS/cm)             | 0.76                                                                              |
| Turbidity (NTU)                  | 15.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.43                                                                              |
| Temperature (Degrees Celsius)    | 15.3                                                                              |
| Redox (ORP mV)                   | 161.4                                                                             |
| parameters                       | @09:45, DTW:22.72, pH:6.97, temp:15.3, cond:0.76, turb:15.2, DO:0.43, redox:161.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:50, DTW:22.76, pH:6.98, temp:15.3, cond:0.76, turb:12.5, DO:0.45, redox:157.6**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:50                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 22.76                                                                             |
| Milliliters Purged (total)       | 1500                                                                              |
| pH                               | 6.98                                                                              |
| Conductivity (mS/cm)             | 0.76                                                                              |
| Turbidity (NTU)                  | 12.5                                                                              |
| Dissolved Oxygen (mg/L)          | 0.45                                                                              |
| Temperature (Degrees Celsius)    | 15.3                                                                              |
| Redox (ORP mV)                   | 157.6                                                                             |
| parameters                       | @09:50, DTW:22.76, pH:6.98, temp:15.3, cond:0.76, turb:12.5, DO:0.45, redox:157.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:55, DTW:22.82, pH:6.98, temp:15.3, cond:0.76, turb:10.1, DO:0.44, redox:156.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:55 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                               |
| Depth to Water (ft)           | 22.82                                                                             |
| Milliliters Purged (total)    | 2000                                                                              |
| pH                            | 6.98                                                                              |
| Conductivity (mS/cm)          | 0.76                                                                              |
| Turbidity (NTU)               | 10.1                                                                              |
| Dissolved Oxygen (mg/L)       | 0.44                                                                              |
| Temperature (Degrees Celsius) | 15.3                                                                              |
| Redox (ORP mV)                | 156.4                                                                             |
| parameters                    | @09:55, DTW:22.82, pH:6.98, temp:15.3, cond:0.76, turb:10.1, DO:0.44, redox:156.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:00, DTW:22.85, pH:6.98, temp:15.2, cond:0.76, turb:9.03, DO:0.4, redox:155.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 22.85                                                                            |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 6.98                                                                             |
| Conductivity (mS/cm)             | 0.76                                                                             |
| Turbidity (NTU)                  | 9.03                                                                             |
| Dissolved Oxygen (mg/L)          | 0.4                                                                              |
| Temperature (Degrees Celsius)    | 15.2                                                                             |
| Redox (ORP mV)                   | 155.3                                                                            |
| parameters                       | @10:00, DTW:22.85, pH:6.98, temp:15.2, cond:0.76, turb:9.03, DO:0.4, redox:155.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:05, DTW:22.88, pH:6.98, temp:15.2, cond:0.76, turb:8.12, DO:0.41, redox:154.3**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:05                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 22.88                                                                             |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 6.98                                                                              |
| Conductivity (mS/cm)             | 0.76                                                                              |
| Turbidity (NTU)                  | 8.12                                                                              |
| Dissolved Oxygen (mg/L)          | 0.41                                                                              |
| Temperature (Degrees Celsius)    | 15.2                                                                              |
| Redox (ORP mV)                   | 154.3                                                                             |
| parameters                       | @10:05, DTW:22.88, pH:6.98, temp:15.2, cond:0.76, turb:8.12, DO:0.41, redox:154.3 |



Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:10, DTW:22.91, pH:6.99, temp:15.2, cond:0.76, turb:7.24, DO:0.36, redox:152.9

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 22.91                                                                             |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 6.99                                                                              |
| Conductivity (mS/cm)             | 0.76                                                                              |
| Turbidity (NTU)                  | 7.24                                                                              |
| Dissolved Oxygen (mg/L)          | 0.36                                                                              |
| Temperature (Degrees Celsius)    | 15.2                                                                              |
| Redox (ORP mV)                   | 152.9                                                                             |
| parameters                       | @10:10, DTW:22.91, pH:6.99, temp:15.2, cond:0.76, turb:7.24, DO:0.36, redox:152.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:15, DTW:22.93, pH:6.99, temp:15.2, cond:0.76, turb:6.95, DO:0.37, redox:151.6

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 22.93                                                                             |
| Milliliters Purged (total)       | 4000                                                                              |
| pH                               | 6.99                                                                              |
| Conductivity (mS/cm)             | 0.76                                                                              |
| Turbidity (NTU)                  | 6.95                                                                              |
| Dissolved Oxygen (mg/L)          | 0.37                                                                              |
| Temperature (Degrees Celsius)    | 15.2                                                                              |
| Redox (ORP mV)                   | 151.6                                                                             |
| parameters                       | @10:15, DTW:22.93, pH:6.99, temp:15.2, cond:0.76, turb:6.95, DO:0.37, redox:151.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:20, DTW:22.95, pH:6.99, temp:15.1, cond:0.76, turb:6.59, DO:0.37, redox:150.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 22.95 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.99  |
| Conductivity (mS/cm)             | 0.76  |
| Turbidity (NTU)                  | 6.59  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.37                                                                              |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 15.1                                                                              |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 150.3                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @10:20, DTW:22.95, pH:6.99, temp:15.1, cond:0.76, turb:6.59, DO:0.37, redox:150.3 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                   |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 10:20                                                                             |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                       |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 4500                                                                              |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.36                                                                              |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:20 |
| Color         | Clear |
| Notable odors | No    |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |                                   |
|--------------------------|-----------------------------------|
| Well Location            | West side Plant 6 north of center |
| Condition of Well        | Good                              |
| Well Locked at Arrival   | No                                |
| Well Locked at Departure | No                                |

Photo of Well



Comments

Replaced 1 bolt, didn't meet drawdown requirements

Signature

BHL

Signed 2019-06-10 13:56:50 UTC

## 2019-06-10, MW-03-05, MW-03-05

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 10:43:58 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-10 11:36:31 EDT by Christine Gregg |
| Location                                                                                          | 42.73815885, -84.57991373                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-10                                 |
| Well Identification                                                                               | MW-03-05                                   |
| Well ID                                                                                           | MW-03-05                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy 60's                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 24.47         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 48.09         |
| Water Column                                                                                                                                                                                                                                              | 23.62         |
| Gallons in Well                                                                                                                                                                                                                                           | 3.84          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 45.5          |
| Purge Start                                                                                                                                                                                                                                               | 10:45         |

### @10:45, DTW:24.47, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 10:45                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 24.47                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @10:45, DTW:24.47, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:50, DTW:25.51, pH:7.56, temp:15.4, cond:2.91, turb:22.9, DO:0.51, redox:-125.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 25.51 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.56  |



|                               |                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 2.91                                                                               |
| Turbidity (NTU)               | 22.9                                                                               |
| Dissolved Oxygen (mg/L)       | 0.51                                                                               |
| Temperature (Degrees Celsius) | 15.4                                                                               |
| Redox (ORP mV)                | -125.3                                                                             |
| parameters                    | @10:50, DTW:25.51, pH:7.56, temp:15.4, cond:2.91, turb:22.9, DO:0.51, redox:-125.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:55, DTW:26.09, pH:7.57, temp:15.1, cond:2.92, turb:19.4, DO:0.36, redox:-127.2**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 10:55                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 26.09                                                                              |
| Milliliters Purged (total)       | 1000                                                                               |
| pH                               | 7.57                                                                               |
| Conductivity (mS/cm)             | 2.92                                                                               |
| Turbidity (NTU)                  | 19.4                                                                               |
| Dissolved Oxygen (mg/L)          | 0.36                                                                               |
| Temperature (Degrees Celsius)    | 15.1                                                                               |
| Redox (ORP mV)                   | -127.2                                                                             |
| parameters                       | @10:55, DTW:26.09, pH:7.57, temp:15.1, cond:2.92, turb:19.4, DO:0.36, redox:-127.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:00, DTW:26.51, pH:7.57, temp:15, cond:2.91, turb:13.5, DO:0.29, redox:-126.9**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 26.51                                                                            |
| Milliliters Purged (total)       | 1500                                                                             |
| pH                               | 7.57                                                                             |
| Conductivity (mS/cm)             | 2.91                                                                             |
| Turbidity (NTU)                  | 13.5                                                                             |
| Dissolved Oxygen (mg/L)          | 0.29                                                                             |
| Temperature (Degrees Celsius)    | 15                                                                               |
| Redox (ORP mV)                   | -126.9                                                                           |
| parameters                       | @11:00, DTW:26.51, pH:7.57, temp:15, cond:2.91, turb:13.5, DO:0.29, redox:-126.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:05, DTW:26.91, pH:7.57, temp:15.1, cond:2.91, turb:9.13, DO:0.27, redox:-126.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:05 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                                |
| Depth to Water (ft)           | 26.91                                                                              |
| Milliliters Purged (total)    | 2000                                                                               |
| pH                            | 7.57                                                                               |
| Conductivity (mS/cm)          | 2.91                                                                               |
| Turbidity (NTU)               | 9.13                                                                               |
| Dissolved Oxygen (mg/L)       | 0.27                                                                               |
| Temperature (Degrees Celsius) | 15.1                                                                               |
| Redox (ORP mV)                | -126.8                                                                             |
| parameters                    | @11:05, DTW:26.91, pH:7.57, temp:15.1, cond:2.91, turb:9.13, DO:0.27, redox:-126.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:10, DTW:27.32, pH:7.58, temp:15.1, cond:2.91, turb:8.78, DO:0.27, redox:-126.8**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 11:10                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 27.32                                                                              |
| Milliliters Purged (total)       | 2500                                                                               |
| pH                               | 7.58                                                                               |
| Conductivity (mS/cm)             | 2.91                                                                               |
| Turbidity (NTU)                  | 8.78                                                                               |
| Dissolved Oxygen (mg/L)          | 0.27                                                                               |
| Temperature (Degrees Celsius)    | 15.1                                                                               |
| Redox (ORP mV)                   | -126.8                                                                             |
| parameters                       | @11:10, DTW:27.32, pH:7.58, temp:15.1, cond:2.91, turb:8.78, DO:0.27, redox:-126.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:15, DTW:27.6, pH:7.58, temp:15.1, cond:2.91, turb:7.69, DO:0.27, redox:-126.3**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 27.6                                                                              |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 7.58                                                                              |
| Conductivity (mS/cm)             | 2.91                                                                              |
| Turbidity (NTU)                  | 7.69                                                                              |
| Dissolved Oxygen (mg/L)          | 0.27                                                                              |
| Temperature (Degrees Celsius)    | 15.1                                                                              |
| Redox (ORP mV)                   | -126.3                                                                            |
| parameters                       | @11:15, DTW:27.6, pH:7.58, temp:15.1, cond:2.91, turb:7.69, DO:0.27, redox:-126.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:20, DTW:27.92, pH:7.58, temp:15.1, cond:2.91, turb:6.93, DO:0.25, redox:-126.1**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 11:20                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 27.92                                                                              |
| Milliliters Purged (total)       | 3500                                                                               |
| pH                               | 7.58                                                                               |
| Conductivity (mS/cm)             | 2.91                                                                               |
| Turbidity (NTU)                  | 6.93                                                                               |
| Dissolved Oxygen (mg/L)          | 0.25                                                                               |
| Temperature (Degrees Celsius)    | 15.1                                                                               |
| Redox (ORP mV)                   | -126.1                                                                             |
| parameters                       | @11:20, DTW:27.92, pH:7.58, temp:15.1, cond:2.91, turb:6.93, DO:0.25, redox:-126.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:25, DTW:28.23, pH:7.58, temp:15.1, cond:2.91, turb:6.23, DO:0.25, redox:-125.6**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 28.23                                                                              |
| Milliliters Purged (total)       | 4000                                                                               |
| pH                               | 7.58                                                                               |
| Conductivity (mS/cm)             | 2.91                                                                               |
| Turbidity (NTU)                  | 6.23                                                                               |
| Dissolved Oxygen (mg/L)          | 0.25                                                                               |
| Temperature (Degrees Celsius)    | 15.1                                                                               |
| Redox (ORP mV)                   | -125.6                                                                             |
| parameters                       | @11:25, DTW:28.23, pH:7.58, temp:15.1, cond:2.91, turb:6.23, DO:0.25, redox:-125.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:30, DTW:28.49, pH:7.58, temp:15.1, cond:2.91, turb:6.67, DO:0.27, redox:-125.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 28.49 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.58  |
| Conductivity (mS/cm)             | 2.91  |
| Turbidity (NTU)                  | 6.67  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.27                                                                               |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 15.1                                                                               |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -125.5                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @11:30, DTW:28.49, pH:7.58, temp:15.1, cond:2.91, turb:6.67, DO:0.27, redox:-125.5 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                    |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 11:06                                                                              |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                        |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 4500                                                                               |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.31                                                                               |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:30 |
| Color         | Clear |
| Notable odors | No    |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |                   |
|--------------------------|-------------------|
| Well Location            | Center of Plant 6 |
| Condition of Well        | Good              |
| Well Locked at Arrival   | Yes               |
| Well Locked at Departure | Yes               |



Photo of Well



Comments

Didn't meet drawdown requirements

Signature

34L

Signed 2019-06-10 14:47:03 UTC

## 2019-06-10, MW-03-06, MW-03-06

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 12:05:40 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-10 12:27:51 EDT by Christine Gregg |
| Location                                                                                          | 42.73758695, -84.57992555                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-10                                 |
| Well Identification                                                                               | MW-03-06                                   |
| Well ID                                                                                           | MW-03-06                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy Windy 60's                          |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 36.14         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 40.6          |
| Water Column                                                                                                                                                                                                                                              | 4.46          |
| Gallons in Well                                                                                                                                                                                                                                           | 0.72          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 39.5          |
| Purge Start                                                                                                                                                                                                                                               | 12:00         |

### @12:00, DTW:36.14, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 12:00                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 36.14                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @12:00, DTW:36.14, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:05, DTW:36.35, pH:6.79, temp:14.2, cond:11.01, turb:52.6, DO:0.35, redox:-55.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 36.35 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.79  |

|                               |                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 11.01                                                                              |
| Turbidity (NTU)               | 52.6                                                                               |
| Dissolved Oxygen (mg/L)       | 0.35                                                                               |
| Temperature (Degrees Celsius) | 14.2                                                                               |
| Redox (ORP mV)                | -55.3                                                                              |
| parameters                    | @12:05, DTW:36.35, pH:6.79, temp:14.2, cond:11.01, turb:52.6, DO:0.35, redox:-55.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:10, DTW:36.35, pH:6.8, temp:14.3, cond:10.96, turb:44.9, DO:0.34, redox:-58.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 36.35                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 6.8                                                                               |
| Conductivity (mS/cm)             | 10.96                                                                             |
| Turbidity (NTU)                  | 44.9                                                                              |
| Dissolved Oxygen (mg/L)          | 0.34                                                                              |
| Temperature (Degrees Celsius)    | 14.3                                                                              |
| Redox (ORP mV)                   | -58.9                                                                             |
| parameters                       | @12:10, DTW:36.35, pH:6.8, temp:14.3, cond:10.96, turb:44.9, DO:0.34, redox:-58.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:15, DTW:36.35, pH:6.8, temp:14.3, cond:10.97, turb:41.1, DO:0.31, redox:-59.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 36.35                                                                             |
| Milliliters Purged (total)       | 1500                                                                              |
| pH                               | 6.8                                                                               |
| Conductivity (mS/cm)             | 10.97                                                                             |
| Turbidity (NTU)                  | 41.1                                                                              |
| Dissolved Oxygen (mg/L)          | 0.31                                                                              |
| Temperature (Degrees Celsius)    | 14.3                                                                              |
| Redox (ORP mV)                   | -59.5                                                                             |
| parameters                       | @12:15, DTW:36.35, pH:6.8, temp:14.3, cond:10.97, turb:41.1, DO:0.31, redox:-59.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:20, DTW:36.35, pH:6.8, temp:14.2, cond:10.96, turb:32.8, DO:0.28, redox:-60.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:20 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                               |
| Depth to Water (ft)           | 36.35                                                                             |
| Milliliters Purged (total)    | 2000                                                                              |
| pH                            | 6.8                                                                               |
| Conductivity (mS/cm)          | 10.96                                                                             |
| Turbidity (NTU)               | 32.8                                                                              |
| Dissolved Oxygen (mg/L)       | 0.28                                                                              |
| Temperature (Degrees Celsius) | 14.2                                                                              |
| Redox (ORP mV)                | -60.1                                                                             |
| parameters                    | @12:20, DTW:36.35, pH:6.8, temp:14.2, cond:10.96, turb:32.8, DO:0.28, redox:-60.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:25, DTW:36.35, pH:6.8, temp:14.2, cond:10.95, turb:25.2, DO:0.23, redox:-60.8**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:25                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 36.35                                                                             |
| Milliliters Purged (total)       | 2500                                                                              |
| pH                               | 6.8                                                                               |
| Conductivity (mS/cm)             | 10.95                                                                             |
| Turbidity (NTU)                  | 25.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.23                                                                              |
| Temperature (Degrees Celsius)    | 14.2                                                                              |
| Redox (ORP mV)                   | -60.8                                                                             |
| parameters                       | @12:25, DTW:36.35, pH:6.8, temp:14.2, cond:10.95, turb:25.2, DO:0.23, redox:-60.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:30, DTW:36.35, pH:6.8, temp:14.2, cond:10.95, turb:15.8, DO:0.22, redox:-60.8**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 36.35                                                                             |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 6.8                                                                               |
| Conductivity (mS/cm)             | 10.95                                                                             |
| Turbidity (NTU)                  | 15.8                                                                              |
| Dissolved Oxygen (mg/L)          | 0.22                                                                              |
| Temperature (Degrees Celsius)    | 14.2                                                                              |
| Redox (ORP mV)                   | -60.8                                                                             |
| parameters                       | @12:30, DTW:36.35, pH:6.8, temp:14.2, cond:10.95, turb:15.8, DO:0.22, redox:-60.8 |



Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:35, DTW:36.35, pH:8.8, temp:14.1, cond:10.96, turb:12.2, DO:0.21, redox:-61.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 36.35                                                                             |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 8.8                                                                               |
| Conductivity (mS/cm)             | 10.96                                                                             |
| Turbidity (NTU)                  | 12.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.21                                                                              |
| Temperature (Degrees Celsius)    | 14.1                                                                              |
| Redox (ORP mV)                   | -61.1                                                                             |
| parameters                       | @12:35, DTW:36.35, pH:8.8, temp:14.1, cond:10.96, turb:12.2, DO:0.21, redox:-61.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:40, DTW:36.35, pH:6.81, temp:14.1, cond:10.97, turb:11.2, DO:0.22, redox:-61.1**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 12:40                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 36.35                                                                              |
| Milliliters Purged (total)       | 4000                                                                               |
| pH                               | 6.81                                                                               |
| Conductivity (mS/cm)             | 10.97                                                                              |
| Turbidity (NTU)                  | 11.2                                                                               |
| Dissolved Oxygen (mg/L)          | 0.22                                                                               |
| Temperature (Degrees Celsius)    | 14.1                                                                               |
| Redox (ORP mV)                   | -61.1                                                                              |
| parameters                       | @12:40, DTW:36.35, pH:6.81, temp:14.1, cond:10.97, turb:11.2, DO:0.22, redox:-61.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:45, DTW:36.35, pH:6.79, temp:14.1, cond:10.96, turb:9.69, DO:0.24, redox:-61.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 36.35 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.79  |
| Conductivity (mS/cm)             | 10.96 |
| Turbidity (NTU)                  | 9.69  |

|                               |                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.24                                                                               |
| Temperature (Degrees Celsius) | 14.1                                                                               |
| Redox (ORP mV)                | -61.2                                                                              |
| parameters                    | @12:45, DTW:36.35, pH:6.79, temp:14.1, cond:10.96, turb:9.69, DO:0.24, redox:-61.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:50, DTW:36.35, pH:6.79, temp:14.1, cond:10.96, turb:9.23, DO:0.24, redox:-61.3**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 12:50                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 36.35                                                                              |
| Milliliters Purged (total)       | 5000                                                                               |
| pH                               | 6.79                                                                               |
| Conductivity (mS/cm)             | 10.96                                                                              |
| Turbidity (NTU)                  | 9.23                                                                               |
| Dissolved Oxygen (mg/L)          | 0.24                                                                               |
| Temperature (Degrees Celsius)    | 14.1                                                                               |
| Redox (ORP mV)                   | -61.3                                                                              |
| parameters                       | @12:50, DTW:36.35, pH:6.79, temp:14.1, cond:10.96, turb:9.23, DO:0.24, redox:-61.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:55, DTW:36.35, pH:6.79, temp:14.1, cond:10.96, turb:9.05, DO:0.23, redox:-61.5**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 12:55                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 36.35                                                                              |
| Milliliters Purged (total)       | 5500                                                                               |
| pH                               | 6.79                                                                               |
| Conductivity (mS/cm)             | 10.96                                                                              |
| Turbidity (NTU)                  | 9.05                                                                               |
| Dissolved Oxygen (mg/L)          | 0.23                                                                               |
| Temperature (Degrees Celsius)    | 14.1                                                                               |
| Redox (ORP mV)                   | -61.5                                                                              |
| parameters                       | @12:55, DTW:36.35, pH:6.79, temp:14.1, cond:10.96, turb:9.05, DO:0.23, redox:-61.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 12:55       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 5500        |
| Well Volumes Purged           | 2.02        |

## **Sample Information**

|               |       |
|---------------|-------|
| Sample Time   | 12:55 |
| Color         | Clear |
| Notable odors | No    |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

### Well Information

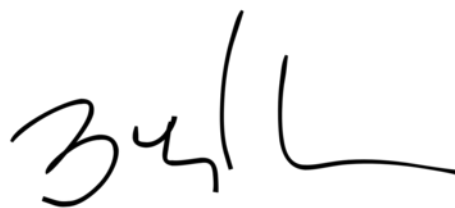
|                          |                               |
|--------------------------|-------------------------------|
| Well Location            | North central part of Plant 6 |
| Condition of Well        | Poor                          |
| Well Locked at Arrival   | Yes                           |
| Well Locked at Departure | Yes                           |

Photo of Well



|          |                                                           |
|----------|-----------------------------------------------------------|
| Comments | 1 tab broken, other 2 are stripped, lock is nonfunctional |
|----------|-----------------------------------------------------------|

Signature

A handwritten signature in black ink, appearing to read 'ZyLL'. The 'Z' is stylized with a loop, and the 'y' has a small tail. The 'L' is a simple vertical stroke with a horizontal base.

Signed 2019-06-10 16:08:54 UTC

---



## 2019-06-06, MW-04-04R, MW-04-04R

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 10:35:04 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-06 11:30:01 EDT by Christine Gregg |
| Location                                                                                          | 42.73729246, -84.57962464                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-04-04R                                  |
| Well ID                                                                                           | MW-04-04R                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy 60's                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 4             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 73.42         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 114           |
| Water Column                                                                                                                                                                                                                                              | 40.58         |
| Gallons in Well                                                                                                                                                                                                                                           | 26.38         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 111.5         |
| Purge Start                                                                                                                                                                                                                                               | 10:30         |

### @10:30, DTW:73.42, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 10:30                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 73.42                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @10:30, DTW:73.42, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:35, DTW:73.44, pH:7.03, temp:17.1, cond:1.45, turb:76.8, DO:4.45, redox:-85.6

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 73.44 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.03  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.45                                                                              |
| Turbidity (NTU)               | 76.8                                                                              |
| Dissolved Oxygen (mg/L)       | 4.45                                                                              |
| Temperature (Degrees Celsius) | 17.1                                                                              |
| Redox (ORP mV)                | -85.6                                                                             |
| parameters                    | @10:35, DTW:73.44, pH:7.03, temp:17.1, cond:1.45, turb:76.8, DO:4.45, redox:-85.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:40, DTW:73.44, pH:6.97, temp:15.5, cond:1.51, turb:67.9, DO:4.16, redox:-73.7**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:40                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 73.44                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 6.97                                                                              |
| Conductivity (mS/cm)             | 1.51                                                                              |
| Turbidity (NTU)                  | 67.9                                                                              |
| Dissolved Oxygen (mg/L)          | 4.16                                                                              |
| Temperature (Degrees Celsius)    | 15.5                                                                              |
| Redox (ORP mV)                   | -73.7                                                                             |
| parameters                       | @10:40, DTW:73.44, pH:6.97, temp:15.5, cond:1.51, turb:67.9, DO:4.16, redox:-73.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:45, DTW:73.44, pH:6.95, temp:15, cond:1.52, turb:89, DO:3.95, redox:-72.4**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 10:45                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 73.44                                                                         |
| Milliliters Purged (total)       | 1500                                                                          |
| pH                               | 6.95                                                                          |
| Conductivity (mS/cm)             | 1.52                                                                          |
| Turbidity (NTU)                  | 89                                                                            |
| Dissolved Oxygen (mg/L)          | 3.95                                                                          |
| Temperature (Degrees Celsius)    | 15                                                                            |
| Redox (ORP mV)                   | -72.4                                                                         |
| parameters                       | @10:45, DTW:73.44, pH:6.95, temp:15, cond:1.52, turb:89, DO:3.95, redox:-72.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:50, DTW:73.44, pH:6.95, temp:14.6, cond:1.54, turb:76.2, DO:3.89, redox:-72.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:50 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                               |
| Depth to Water (ft)           | 73.44                                                                             |
| Milliliters Purged (total)    | 2000                                                                              |
| pH                            | 6.95                                                                              |
| Conductivity (mS/cm)          | 1.54                                                                              |
| Turbidity (NTU)               | 76.2                                                                              |
| Dissolved Oxygen (mg/L)       | 3.89                                                                              |
| Temperature (Degrees Celsius) | 14.6                                                                              |
| Redox (ORP mV)                | -72.1                                                                             |
| parameters                    | @10:50, DTW:73.44, pH:6.95, temp:14.6, cond:1.54, turb:76.2, DO:3.89, redox:-72.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:55, DTW:73.44, pH:6.94, temp:14.5, cond:3.75, turb:67.1, DO:3.72, redox:-72.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:55                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 73.44                                                                             |
| Milliliters Purged (total)       | 2500                                                                              |
| pH                               | 6.94                                                                              |
| Conductivity (mS/cm)             | 3.75                                                                              |
| Turbidity (NTU)                  | 67.1                                                                              |
| Dissolved Oxygen (mg/L)          | 3.72                                                                              |
| Temperature (Degrees Celsius)    | 14.5                                                                              |
| Redox (ORP mV)                   | -72.1                                                                             |
| parameters                       | @10:55, DTW:73.44, pH:6.94, temp:14.5, cond:3.75, turb:67.1, DO:3.72, redox:-72.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:00, DTW:73.44, pH:6.93, temp:14.6, cond:1.55, turb:45.9, DO:3.58, redox:-69.3**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:00                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 73.44                                                                             |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 6.93                                                                              |
| Conductivity (mS/cm)             | 1.55                                                                              |
| Turbidity (NTU)                  | 45.9                                                                              |
| Dissolved Oxygen (mg/L)          | 3.58                                                                              |
| Temperature (Degrees Celsius)    | 14.6                                                                              |
| Redox (ORP mV)                   | -69.3                                                                             |
| parameters                       | @11:00, DTW:73.44, pH:6.93, temp:14.6, cond:1.55, turb:45.9, DO:3.58, redox:-69.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:05, DTW:73.44, pH:6.89, temp:14.7, cond:1.55, turb:58.1, DO:3.09, redox:-69.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:05                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 73.44                                                                             |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 6.89                                                                              |
| Conductivity (mS/cm)             | 1.55                                                                              |
| Turbidity (NTU)                  | 58.1                                                                              |
| Dissolved Oxygen (mg/L)          | 3.09                                                                              |
| Temperature (Degrees Celsius)    | 14.7                                                                              |
| Redox (ORP mV)                   | -69.4                                                                             |
| parameters                       | @11:05, DTW:73.44, pH:6.89, temp:14.7, cond:1.55, turb:58.1, DO:3.09, redox:-69.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:10, DTW:73.44, pH:6.88, temp:14.7, cond:1.55, turb:69.9, DO:7.51, redox:-69.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 73.44                                                                             |
| Milliliters Purged (total)       | 4000                                                                              |
| pH                               | 6.88                                                                              |
| Conductivity (mS/cm)             | 1.55                                                                              |
| Turbidity (NTU)                  | 69.9                                                                              |
| Dissolved Oxygen (mg/L)          | 7.51                                                                              |
| Temperature (Degrees Celsius)    | 14.7                                                                              |
| Redox (ORP mV)                   | -69.5                                                                             |
| parameters                       | @11:10, DTW:73.44, pH:6.88, temp:14.7, cond:1.55, turb:69.9, DO:7.51, redox:-69.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:15, DTW:73.44, pH:6.89, temp:14.8, cond:1.56, turb:68.2, DO:8.28, redox:-68.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 73.44 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.89  |
| Conductivity (mS/cm)             | 1.56  |
| Turbidity (NTU)                  | 68.2  |



|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 8.28                                                                              |
| Temperature (Degrees Celsius) | 14.8                                                                              |
| Redox (ORP mV)                | -68.1                                                                             |
| parameters                    | @11:15, DTW:73.44, pH:6.89, temp:14.8, cond:1.56, turb:68.2, DO:8.28, redox:-68.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:20, DTW:73.44, pH:6.89, temp:14.6, cond:1.56, turb:69.6, DO:8.21, redox:-69.6**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 73.44                                                                             |
| Milliliters Purged (total)       | 5000                                                                              |
| pH                               | 6.89                                                                              |
| Conductivity (mS/cm)             | 1.56                                                                              |
| Turbidity (NTU)                  | 69.6                                                                              |
| Dissolved Oxygen (mg/L)          | 8.21                                                                              |
| Temperature (Degrees Celsius)    | 14.6                                                                              |
| Redox (ORP mV)                   | -69.6                                                                             |
| parameters                       | @11:20, DTW:73.44, pH:6.89, temp:14.6, cond:1.56, turb:69.6, DO:8.21, redox:-69.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:25, DTW:73.44, pH:6.89, temp:14.8, cond:1.56, turb:64.1, DO:8.2, redox:-63.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 73.44                                                                            |
| Milliliters Purged (total)       | 5500                                                                             |
| pH                               | 6.89                                                                             |
| Conductivity (mS/cm)             | 1.56                                                                             |
| Turbidity (NTU)                  | 64.1                                                                             |
| Dissolved Oxygen (mg/L)          | 8.2                                                                              |
| Temperature (Degrees Celsius)    | 14.8                                                                             |
| Redox (ORP mV)                   | -63.4                                                                            |
| parameters                       | @11:25, DTW:73.44, pH:6.89, temp:14.8, cond:1.56, turb:64.1, DO:8.2, redox:-63.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:30, DTW:73.44, pH:6.89, temp:14.8, cond:1.56, turb:70.1, DO:8.15, redox:-63.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 73.44 |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Milliliters Purged (total)                                                                                                                                                                                                                                                                                                                       | 6000                                                                              |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.89                                                                              |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1.56                                                                              |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 70.1                                                                              |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 8.15                                                                              |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 14.8                                                                              |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -63.3                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @11:30, DTW:73.44, pH:6.89, temp:14.8, cond:1.56, turb:70.1, DO:8.15, redox:-63.3 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                   |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 11:30                                                                             |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                       |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6000                                                                              |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.06                                                                              |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:30 |
| Color         | Clear |
| Notable odors | No    |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |                   |
|--------------------------|-------------------|
| Well Location            | Center of Plant 6 |
| Condition of Well        | Good              |
| Well Locked at Arrival   | Yes               |
| Well Locked at Departure | Yes               |

Photo of Well



---

Signature

*Handwritten signature: Zuel*

Signed 2019-06-06 14:37:06 UTC

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## 2019-06-12, MW-04-05(6), MW-04-05(6)

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 14:53:14 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-12 15:15:14 EDT by Christine Gregg |
| Location                                                                                          | 42.73890857, -84.57977249                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-12                                 |
| Well Identification                                                                               | MW-04-05(6)                                |
| Well ID                                                                                           | MW-04-05(6)                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Mostly Cloudy Windy 70's                   |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 9.34          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 29.62         |
| Water Column                                                                                                                                                                                                                                              | 20.28         |
| Gallons in Well                                                                                                                                                                                                                                           | 3.3           |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 27            |
| Purge Start                                                                                                                                                                                                                                               | 14:55         |

### @14:55, DTW:9.34, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 14:55                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 9.34                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @14:55, DTW:9.34, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:00, DTW:9.74, pH:7.21, temp:14.6, cond:5.51, turb:9.56, DO:1.46, redox:-141.6

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 9.74  |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.21  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 5.51                                                                              |
| Turbidity (NTU)               | 9.56                                                                              |
| Dissolved Oxygen (mg/L)       | 1.46                                                                              |
| Temperature (Degrees Celsius) | 14.6                                                                              |
| Redox (ORP mV)                | -141.6                                                                            |
| parameters                    | @15:00, DTW:9.74, pH:7.21, temp:14.6, cond:5.51, turb:9.56, DO:1.46, redox:-141.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:05, DTW:10.02, pH:7.14, temp:14.2, cond:5.52, turb:8.34, DO:0.89, redox:-139.9**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 15:05                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 10.02                                                                              |
| Milliliters Purged (total)       | 1000                                                                               |
| pH                               | 7.14                                                                               |
| Conductivity (mS/cm)             | 5.52                                                                               |
| Turbidity (NTU)                  | 8.34                                                                               |
| Dissolved Oxygen (mg/L)          | 0.89                                                                               |
| Temperature (Degrees Celsius)    | 14.2                                                                               |
| Redox (ORP mV)                   | -139.9                                                                             |
| parameters                       | @15:05, DTW:10.02, pH:7.14, temp:14.2, cond:5.52, turb:8.34, DO:0.89, redox:-139.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:10, DTW:10.31, pH:7.13, temp:14.1, cond:5.52, turb:7.54, DO:0.74, redox:-139.4**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 15:10                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 10.31                                                                              |
| Milliliters Purged (total)       | 1500                                                                               |
| pH                               | 7.13                                                                               |
| Conductivity (mS/cm)             | 5.52                                                                               |
| Turbidity (NTU)                  | 7.54                                                                               |
| Dissolved Oxygen (mg/L)          | 0.74                                                                               |
| Temperature (Degrees Celsius)    | 14.1                                                                               |
| Redox (ORP mV)                   | -139.4                                                                             |
| parameters                       | @15:10, DTW:10.31, pH:7.13, temp:14.1, cond:5.52, turb:7.54, DO:0.74, redox:-139.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:15, DTW:10.55, pH:7.13, temp:13.7, cond:5.51, turb:6.54, DO:0.44, redox:-139.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:15 |
| Minutes Elapsed between readings | 5     |



|                               |                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                                |
| Depth to Water (ft)           | 10.55                                                                              |
| Milliliters Purged (total)    | 2000                                                                               |
| pH                            | 7.13                                                                               |
| Conductivity (mS/cm)          | 5.51                                                                               |
| Turbidity (NTU)               | 6.54                                                                               |
| Dissolved Oxygen (mg/L)       | 0.44                                                                               |
| Temperature (Degrees Celsius) | 13.7                                                                               |
| Redox (ORP mV)                | -139.8                                                                             |
| parameters                    | @15:15, DTW:10.55, pH:7.13, temp:13.7, cond:5.51, turb:6.54, DO:0.44, redox:-139.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:20, DTW:10.71, pH:7.13, temp:13.8, cond:5.5, turb:5.12, DO:0.46, redox:-140.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 15:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 10.71                                                                             |
| Milliliters Purged (total)       | 2500                                                                              |
| pH                               | 7.13                                                                              |
| Conductivity (mS/cm)             | 5.5                                                                               |
| Turbidity (NTU)                  | 5.12                                                                              |
| Dissolved Oxygen (mg/L)          | 0.46                                                                              |
| Temperature (Degrees Celsius)    | 13.8                                                                              |
| Redox (ORP mV)                   | -140.2                                                                            |
| parameters                       | @15:20, DTW:10.71, pH:7.13, temp:13.8, cond:5.5, turb:5.12, DO:0.46, redox:-140.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:25, DTW:10.88, pH:7.13, temp:13.8, cond:5.5, turb:3.95, DO:0.42, redox:-140.3**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 15:25                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 10.88                                                                             |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 7.13                                                                              |
| Conductivity (mS/cm)             | 5.5                                                                               |
| Turbidity (NTU)                  | 3.95                                                                              |
| Dissolved Oxygen (mg/L)          | 0.42                                                                              |
| Temperature (Degrees Celsius)    | 13.8                                                                              |
| Redox (ORP mV)                   | -140.3                                                                            |
| parameters                       | @15:25, DTW:10.88, pH:7.13, temp:13.8, cond:5.5, turb:3.95, DO:0.42, redox:-140.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:30, DTW:11.03, pH:7.12, temp:13.8, cond:5.49, turb:3.45, DO:0.43, redox:-140.7**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 15:30                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 11.03                                                                              |
| Milliliters Purged (total)       | 3500                                                                               |
| pH                               | 7.12                                                                               |
| Conductivity (mS/cm)             | 5.49                                                                               |
| Turbidity (NTU)                  | 3.45                                                                               |
| Dissolved Oxygen (mg/L)          | 0.43                                                                               |
| Temperature (Degrees Celsius)    | 13.8                                                                               |
| Redox (ORP mV)                   | -140.7                                                                             |
| parameters                       | @15:30, DTW:11.03, pH:7.12, temp:13.8, cond:5.49, turb:3.45, DO:0.43, redox:-140.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:35, DTW:11.15, pH:7.12, temp:13.8, cond:5.48, turb:2.96, DO:0.41, redox:-141.1**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 15:35                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 11.15                                                                              |
| Milliliters Purged (total)       | 4000                                                                               |
| pH                               | 7.12                                                                               |
| Conductivity (mS/cm)             | 5.48                                                                               |
| Turbidity (NTU)                  | 2.96                                                                               |
| Dissolved Oxygen (mg/L)          | 0.41                                                                               |
| Temperature (Degrees Celsius)    | 13.8                                                                               |
| Redox (ORP mV)                   | -141.1                                                                             |
| parameters                       | @15:35, DTW:11.15, pH:7.12, temp:13.8, cond:5.48, turb:2.96, DO:0.41, redox:-141.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 15:35       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 4000        |
| Well Volumes Purged           | 0.32        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:35 |
| Color         | Clear |
| Notable odors | No    |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

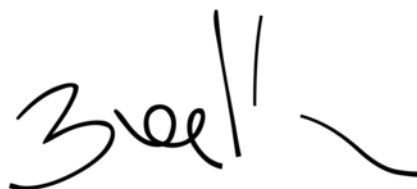
|                          |                                |
|--------------------------|--------------------------------|
| Well Location            | East side of Plant 6 near gate |
| Condition of Well        | Good                           |
| Well Locked at Arrival   | No                             |
| Well Locked at Departure | No                             |

Photo of Well



|          |                                   |
|----------|-----------------------------------|
| Comments | Didn't meet drawdown requirements |
|----------|-----------------------------------|

Signature

A handwritten signature in black ink, appearing to be 'Zee' followed by a stylized flourish.

Signed 2019-06-12 18:59:10 UTC

---

## 2019-06-06, MW-04-06R, MW-04-06R

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 09:30:40 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-06 10:22:32 EDT by Christine Gregg |
| Location                                                                                          | 42.73892341, -84.57978775                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-04-06R                                  |
| Well ID                                                                                           | MW-04-06R                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy Hazy 60's                           |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 4             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 62.92         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 77.98         |
| Water Column                                                                                                                                                                                                                                              | 15.06         |
| Gallons in Well                                                                                                                                                                                                                                           | 9.79          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 75            |
| Purge Start                                                                                                                                                                                                                                               | 09:15         |

### @09:15, DTW:62.92, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 09:15                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 62.92                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @09:15, DTW:62.92, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:20, DTW:62.94, pH:7.24, temp:14.5, cond:5.42, turb:27.7, DO:0.39, redox:-225.4

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 62.94 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.24  |



|                               |                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 5.42                                                                               |
| Turbidity (NTU)               | 27.7                                                                               |
| Dissolved Oxygen (mg/L)       | 0.39                                                                               |
| Temperature (Degrees Celsius) | 14.5                                                                               |
| Redox (ORP mV)                | -225.4                                                                             |
| parameters                    | @09:20, DTW:62.94, pH:7.24, temp:14.5, cond:5.42, turb:27.7, DO:0.39, redox:-225.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@09:25, DTW:62.94, pH:7.26, temp:14.5, cond:5.42, turb:23.2, DO:0.31, redox:-227.1**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 09:25                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 62.94                                                                              |
| Milliliters Purged (total)       | 1000                                                                               |
| pH                               | 7.26                                                                               |
| Conductivity (mS/cm)             | 5.42                                                                               |
| Turbidity (NTU)                  | 23.2                                                                               |
| Dissolved Oxygen (mg/L)          | 0.31                                                                               |
| Temperature (Degrees Celsius)    | 14.5                                                                               |
| Redox (ORP mV)                   | -227.1                                                                             |
| parameters                       | @09:25, DTW:62.94, pH:7.26, temp:14.5, cond:5.42, turb:23.2, DO:0.31, redox:-227.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@09:30, DTW:62.94, pH:7.25, temp:14.6, cond:5.41, turb:16.9, DO:0.32, redox:-226.4**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 09:30                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 62.94                                                                              |
| Milliliters Purged (total)       | 1500                                                                               |
| pH                               | 7.25                                                                               |
| Conductivity (mS/cm)             | 5.41                                                                               |
| Turbidity (NTU)                  | 16.9                                                                               |
| Dissolved Oxygen (mg/L)          | 0.32                                                                               |
| Temperature (Degrees Celsius)    | 14.6                                                                               |
| Redox (ORP mV)                   | -226.4                                                                             |
| parameters                       | @09:30, DTW:62.94, pH:7.25, temp:14.6, cond:5.41, turb:16.9, DO:0.32, redox:-226.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@09:35, DTW:62.94, pH:7.25, temp:14.6, cond:5.41, turb:13.2, DO:0.31, redox:-227.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:35 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                                |
| Depth to Water (ft)           | 62.94                                                                              |
| Milliliters Purged (total)    | 2000                                                                               |
| pH                            | 7.25                                                                               |
| Conductivity (mS/cm)          | 5.41                                                                               |
| Turbidity (NTU)               | 13.2                                                                               |
| Dissolved Oxygen (mg/L)       | 0.31                                                                               |
| Temperature (Degrees Celsius) | 14.6                                                                               |
| Redox (ORP mV)                | -227.5                                                                             |
| parameters                    | @09:35, DTW:62.94, pH:7.25, temp:14.6, cond:5.41, turb:13.2, DO:0.31, redox:-227.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:40, DTW:62.94, pH:7.24, temp:14.6, cond:5.4, turb:11.7, DO:0.28, redox:-227.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 62.94                                                                             |
| Milliliters Purged (total)       | 2500                                                                              |
| pH                               | 7.24                                                                              |
| Conductivity (mS/cm)             | 5.4                                                                               |
| Turbidity (NTU)                  | 11.7                                                                              |
| Dissolved Oxygen (mg/L)          | 0.28                                                                              |
| Temperature (Degrees Celsius)    | 14.6                                                                              |
| Redox (ORP mV)                   | -227.1                                                                            |
| parameters                       | @09:40, DTW:62.94, pH:7.24, temp:14.6, cond:5.4, turb:11.7, DO:0.28, redox:-227.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:45, DTW:62.94, pH:7.24, temp:14.7, cond:5.41, turb:10.1, DO:0.29, redox:-225.9**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 62.94                                                                              |
| Milliliters Purged (total)       | 3000                                                                               |
| pH                               | 7.24                                                                               |
| Conductivity (mS/cm)             | 5.41                                                                               |
| Turbidity (NTU)                  | 10.1                                                                               |
| Dissolved Oxygen (mg/L)          | 0.29                                                                               |
| Temperature (Degrees Celsius)    | 14.7                                                                               |
| Redox (ORP mV)                   | -225.9                                                                             |
| parameters                       | @09:45, DTW:62.94, pH:7.24, temp:14.7, cond:5.41, turb:10.1, DO:0.29, redox:-225.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:50, DTW:62.94, pH:7.24, temp:14.7, cond:5.41, turb:9.65, DO:0.29, redox:-226.1**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 09:50                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 62.94                                                                              |
| Milliliters Purged (total)       | 3500                                                                               |
| pH                               | 7.24                                                                               |
| Conductivity (mS/cm)             | 5.41                                                                               |
| Turbidity (NTU)                  | 9.65                                                                               |
| Dissolved Oxygen (mg/L)          | 0.29                                                                               |
| Temperature (Degrees Celsius)    | 14.7                                                                               |
| Redox (ORP mV)                   | -226.1                                                                             |
| parameters                       | @09:50, DTW:62.94, pH:7.24, temp:14.7, cond:5.41, turb:9.65, DO:0.29, redox:-226.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:55, DTW:62.94, pH:7.24, temp:14.7, cond:5.42, turb:9.34, DO:0.29, redox:-227.2**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 09:55                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 62.94                                                                              |
| Milliliters Purged (total)       | 4000                                                                               |
| pH                               | 7.24                                                                               |
| Conductivity (mS/cm)             | 5.42                                                                               |
| Turbidity (NTU)                  | 9.34                                                                               |
| Dissolved Oxygen (mg/L)          | 0.29                                                                               |
| Temperature (Degrees Celsius)    | 14.7                                                                               |
| Redox (ORP mV)                   | -227.2                                                                             |
| parameters                       | @09:55, DTW:62.94, pH:7.24, temp:14.7, cond:5.42, turb:9.34, DO:0.29, redox:-227.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:00, DTW:62.94, pH:7.24, temp:14.7, cond:5.42, turb:9.05, DO:0.28, redox:-227.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 62.94 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.24  |
| Conductivity (mS/cm)             | 5.42  |
| Turbidity (NTU)                  | 9.05  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.28                                                                               |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 14.7                                                                               |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -227.2                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @10:00, DTW:62.94, pH:7.24, temp:14.7, cond:5.42, turb:9.05, DO:0.28, redox:-227.2 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                    |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 10:00                                                                              |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                        |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 4500                                                                               |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.12                                                                               |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:00 |
| Color         | Clear |
| Notable odors | No    |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |                      |
|--------------------------|----------------------|
| Well Location            | East side of Plant 6 |
| Condition of Well        | Good                 |
| Well Locked at Arrival   | Yes                  |
| Well Locked at Departure | Yes                  |

Photo of Well



---

Signature

Bull

Signed 2019-06-06 13:33:34 UTC

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## 2019-06-12, MW-05(3), MW-05(3)

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 13:05:26 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-12 13:31:48 EDT by Christine Gregg |
| Location                                                                                          | 42.74521507, -84.58370143                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-12                                 |
| Well Identification                                                                               | MW-05(3)                                   |
| Well ID                                                                                           | MW-05(3)                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | Dup-05                                     |
| Weather                                                                                           | Sunny, 70F                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 4             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 2.72          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 15.21         |
| Water Column                                                                                                                                                                                                                                              | 12.49         |
| Gallons in Well                                                                                                                                                                                                                                           | 8.12          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 9.99          |
| Purge Start                                                                                                                                                                                                                                               | 13:05         |

### @13:10, DTW:3.35, pH:7.39, temp:15.3, cond:0.87, turb:4.92, DO:0.26, redox:142.6

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 13:10                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 3.35                                                                             |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 7.39                                                                             |
| Conductivity (mS/cm)          | 0.87                                                                             |
| Turbidity (NTU)               | 4.92                                                                             |
| Dissolved Oxygen (mg/L)       | 0.26                                                                             |
| Temperature (Degrees Celsius) | 15.3                                                                             |
| Redox (ORP mV)                | 142.6                                                                            |
| parameters                    | @13:10, DTW:3.35, pH:7.39, temp:15.3, cond:0.87, turb:4.92, DO:0.26, redox:142.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:15, DTW:3.69, pH:7.4, temp:15.5, cond:0.87, turb:4.22, DO:0.27, redox:141.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 3.69                                                                            |
| Milliliters Purged (total)       | 2000                                                                            |
| pH                               | 7.4                                                                             |
| Conductivity (mS/cm)             | 0.87                                                                            |
| Turbidity (NTU)                  | 4.22                                                                            |
| Dissolved Oxygen (mg/L)          | 0.27                                                                            |
| Temperature (Degrees Celsius)    | 15.5                                                                            |
| Redox (ORP mV)                   | 141.8                                                                           |
| parameters                       | @13:15, DTW:3.69, pH:7.4, temp:15.5, cond:0.87, turb:4.22, DO:0.27, redox:141.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:20, DTW:3.79, pH:7.4, temp:15.3, cond:0.86, turb:2.63, DO:0.31, redox:141.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 3.79                                                                            |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.4                                                                             |
| Conductivity (mS/cm)             | 0.86                                                                            |
| Turbidity (NTU)                  | 2.63                                                                            |
| Dissolved Oxygen (mg/L)          | 0.31                                                                            |
| Temperature (Degrees Celsius)    | 15.3                                                                            |
| Redox (ORP mV)                   | 141.7                                                                           |
| parameters                       | @13:20, DTW:3.79, pH:7.4, temp:15.3, cond:0.86, turb:2.63, DO:0.31, redox:141.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:25, DTW:3.79, pH:7.41, temp:15.1, cond:0.84, turb:2.17, DO:0.36, redox:142**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 3.79  |
| Milliliters Purged (total)       | 4000  |
| pH                               | 7.41  |
| Conductivity (mS/cm)             | 0.84  |
| Turbidity (NTU)                  | 2.17  |
| Dissolved Oxygen (mg/L)          | 0.36  |
| Temperature (Degrees Celsius)    | 15.1  |
| Redox (ORP mV)                   | 142   |

parameters

@13:25, DTW:3.79, pH:7.41, temp:15.1, cond:0.84, turb:2.17, DO:0.36, redox:142

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:30, DTW:3.79, pH:7.41, temp:15, cond:0.84, turb:1.75, DO:0.38, redox:142.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 3.79  |
| Milliliters Purged (total)       | 5000  |
| pH                               | 7.41  |
| Conductivity (mS/cm)             | 0.84  |
| Turbidity (NTU)                  | 1.75  |
| Dissolved Oxygen (mg/L)          | 0.38  |
| Temperature (Degrees Celsius)    | 15    |
| Redox (ORP mV)                   | 142.5 |

parameters

@13:30, DTW:3.79, pH:7.41, temp:15, cond:0.84, turb:1.75, DO:0.38, redox:142.5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 13:40 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:35 |
| Color         | Clear |
| Notable odors | None  |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to be 'And Vh' or similar, written in a cursive style.

Signed 2019-06-12 17:07:03 UTC

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## 2019-06-12, MW-06(3), MW-06(3)

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 13:49:57 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-12 14:23:08 EDT by Christine Gregg |
| Location                                                                                          | 42.74518293, -84.58395674                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-12                                 |
| Well Identification                                                                               | MW-06(3)                                   |
| Well ID                                                                                           | MW-06(3)                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Sunny, 70F                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 4             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 0.7           |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 11            |
| Water Column                                                                                                                                                                                                                                               | 10.3          |
| Gallons in Well                                                                                                                                                                                                                                            | 6.69          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                   | 8.5           |
| Purge Start                                                                                                                                                                                                                                                | 13:50         |

### @13:55, DTW:0.91, pH:7.52, temp:16.4, cond:0.36, turb:3.63, DO:2.11, redox:157.1

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 13:55                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 0.91                                                                             |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 7.52                                                                             |
| Conductivity (mS/cm)          | 0.36                                                                             |
| Turbidity (NTU)               | 3.63                                                                             |
| Dissolved Oxygen (mg/L)       | 2.11                                                                             |
| Temperature (Degrees Celsius) | 16.4                                                                             |
| Redox (ORP mV)                | 157.1                                                                            |
| parameters                    | @13:55, DTW:0.91, pH:7.52, temp:16.4, cond:0.36, turb:3.63, DO:2.11, redox:157.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit



**@14:00, DTW:0.91, pH:7.53, temp:17, cond:0.363, turb:2.11, DO:1.94, redox:159.6**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 0.91                                                                            |
| Milliliters Purged (total)       | 2000                                                                            |
| pH                               | 7.53                                                                            |
| Conductivity (mS/cm)             | 0.363                                                                           |
| Turbidity (NTU)                  | 2.11                                                                            |
| Dissolved Oxygen (mg/L)          | 1.94                                                                            |
| Temperature (Degrees Celsius)    | 17                                                                              |
| Redox (ORP mV)                   | 159.6                                                                           |
| parameters                       | @14:00, DTW:0.91, pH:7.53, temp:17, cond:0.363, turb:2.11, DO:1.94, redox:159.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:05, DTW:0.91, pH:7.53, temp:16.9, cond:0.363, turb:2.84, DO:2.03, redox:160.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:05                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 0.91                                                                              |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 7.53                                                                              |
| Conductivity (mS/cm)             | 0.363                                                                             |
| Turbidity (NTU)                  | 2.84                                                                              |
| Dissolved Oxygen (mg/L)          | 2.03                                                                              |
| Temperature (Degrees Celsius)    | 16.9                                                                              |
| Redox (ORP mV)                   | 160.9                                                                             |
| parameters                       | @14:05, DTW:0.91, pH:7.53, temp:16.9, cond:0.363, turb:2.84, DO:2.03, redox:160.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:10, DTW:0.91, pH:7.53, temp:16.7, cond:0.361, turb:1.8, DO:2.09, redox:165.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 0.91  |
| Milliliters Purged (total)       | 4000  |
| pH                               | 7.53  |
| Conductivity (mS/cm)             | 0.361 |
| Turbidity (NTU)                  | 1.8   |
| Dissolved Oxygen (mg/L)          | 2.09  |
| Temperature (Degrees Celsius)    | 16.7  |
| Redox (ORP mV)                   | 165.2 |

parameters

@14:10, DTW:0.91, pH:7.53, temp:16.7, cond:0.361, turb:1.8, DO:2.09, redox:165.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:15, DTW:0.91, pH:7.53, temp:16.7, cond:0.36, turb:1.44, DO:2.05, redox:166.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 0.91  |
| Milliliters Purged (total)       | 5000  |
| pH                               | 7.53  |
| Conductivity (mS/cm)             | 0.36  |
| Turbidity (NTU)                  | 1.44  |
| Dissolved Oxygen (mg/L)          | 2.05  |
| Temperature (Degrees Celsius)    | 16.7  |
| Redox (ORP mV)                   | 166.5 |

parameters

@14:15, DTW:0.91, pH:7.53, temp:16.7, cond:0.36, turb:1.44, DO:2.05, redox:166.5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:20, DTW:0.91, pH:7.53, temp:16.9, cond:0.362, turb:1.32, DO:2.05, redox:167.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 0.91  |
| Milliliters Purged (total)       | 6000  |
| pH                               | 7.53  |
| Conductivity (mS/cm)             | 0.362 |
| Turbidity (NTU)                  | 1.32  |
| Dissolved Oxygen (mg/L)          | 2.05  |
| Temperature (Degrees Celsius)    | 16.9  |
| Redox (ORP mV)                   | 167.8 |

parameters

@14:20, DTW:0.91, pH:7.53, temp:16.9, cond:0.362, turb:1.32, DO:2.05, redox:167.8

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

Purge End 14:30

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:25 |
| Color         | Clear |
| Notable odors | None  |

## VOCs

|                     |      |
|---------------------|------|
| Constituent Sampled | VOCs |
|---------------------|------|

|                      |            |
|----------------------|------------|
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

### Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |
| Signature                |      |

A handwritten signature in black ink, appearing to read "Andrew", is centered on the page.

Signed 2019-06-12 17:52:49 UTC

## 2019-06-13, MW-12-01, MW-12-01

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-13 11:31:25 EDT by Gary Schafer    |
| Updated                                                                                           | 2019-06-13 13:26:58 EDT by Christine Gregg |
| Location                                                                                          | 42.7366362, -84.58703323                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Gary Schafer                               |
| Date                                                                                              | 2019-06-13                                 |
| Well Identification                                                                               | MW-12-01                                   |
| Well ID                                                                                           | MW-12-01                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Lite raining temp 60                       |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 4             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 72.68         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 111           |
| Water Column                                                                                                                                                                                                                                              | 38.32         |
| Gallons in Well                                                                                                                                                                                                                                           | 24.91         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 72.68         |
| Purge Start                                                                                                                                                                                                                                               | 11:33         |

### @11:35, DTW:68.43, pH:7.06, temp:12.8, cond:2.27, turb:192, DO:0.24, redox:-27.6

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 11:35                                                                            |
| Rate (mL/min)                 | 150                                                                              |
| Depth to Water (ft)           | 68.43                                                                            |
| pH                            | 7.06                                                                             |
| Conductivity (mS/cm)          | 2.27                                                                             |
| Turbidity (NTU)               | 192                                                                              |
| Dissolved Oxygen (mg/L)       | 0.24                                                                             |
| Temperature (Degrees Celsius) | 12.8                                                                             |
| Redox (ORP mV)                | -27.6                                                                            |
| parameters                    | @11:35, DTW:68.43, pH:7.06, temp:12.8, cond:2.27, turb:192, DO:0.24, redox:-27.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:40, DTW:68.43, pH:7.07, temp:12.9, cond:2.27, turb:171, DO:0.21, redox:-32.5

|              |       |
|--------------|-------|
| Reading Time | 11:40 |
|--------------|-------|

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 68.43                                                                            |
| pH                               | 7.07                                                                             |
| Conductivity (mS/cm)             | 2.27                                                                             |
| Turbidity (NTU)                  | 171                                                                              |
| Dissolved Oxygen (mg/L)          | 0.21                                                                             |
| Temperature (Degrees Celsius)    | 12.9                                                                             |
| Redox (ORP mV)                   | -32.5                                                                            |
| parameters                       | @11:40, DTW:68.43, pH:7.07, temp:12.9, cond:2.27, turb:171, DO:0.21, redox:-32.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:45, DTW:68.43, pH:7.07, temp:12.9, cond:2.27, turb:107, DO:0.27, redox:-33.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 68.43                                                                            |
| pH                               | 7.07                                                                             |
| Conductivity (mS/cm)             | 2.27                                                                             |
| Turbidity (NTU)                  | 107                                                                              |
| Dissolved Oxygen (mg/L)          | 0.27                                                                             |
| Temperature (Degrees Celsius)    | 12.9                                                                             |
| Redox (ORP mV)                   | -33.6                                                                            |
| parameters                       | @11:45, DTW:68.43, pH:7.07, temp:12.9, cond:2.27, turb:107, DO:0.27, redox:-33.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:50, DTW:68.43, pH:7.07, temp:12.8, cond:2.27, turb:61.4, DO:0.33, redox:-34.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:50                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 68.43                                                                             |
| pH                               | 7.07                                                                              |
| Conductivity (mS/cm)             | 2.27                                                                              |
| Turbidity (NTU)                  | 61.4                                                                              |
| Dissolved Oxygen (mg/L)          | 0.33                                                                              |
| Temperature (Degrees Celsius)    | 12.8                                                                              |
| Redox (ORP mV)                   | -34.4                                                                             |
| parameters                       | @11:50, DTW:68.43, pH:7.07, temp:12.8, cond:2.27, turb:61.4, DO:0.33, redox:-34.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:55, DTW:68.43, pH:7.08, temp:12.8, cond:2.25, turb:41.3, DO:0.4, redox:-34.7**



|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 68.43                                                                            |
| pH                               | 7.08                                                                             |
| Conductivity (mS/cm)             | 2.25                                                                             |
| Turbidity (NTU)                  | 41.3                                                                             |
| Dissolved Oxygen (mg/L)          | 0.4                                                                              |
| Temperature (Degrees Celsius)    | 12.8                                                                             |
| Redox (ORP mV)                   | -34.7                                                                            |
| parameters                       | @11:55, DTW:68.43, pH:7.08, temp:12.8, cond:2.25, turb:41.3, DO:0.4, redox:-34.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:00, DTW:68.43, pH:7.08, temp:12.8, cond:2.23, turb:34.1, DO:0.53, redox:-34.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:00                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 68.43                                                                             |
| pH                               | 7.08                                                                              |
| Conductivity (mS/cm)             | 2.23                                                                              |
| Turbidity (NTU)                  | 34.1                                                                              |
| Dissolved Oxygen (mg/L)          | 0.53                                                                              |
| Temperature (Degrees Celsius)    | 12.8                                                                              |
| Redox (ORP mV)                   | -34.4                                                                             |
| parameters                       | @12:00, DTW:68.43, pH:7.08, temp:12.8, cond:2.23, turb:34.1, DO:0.53, redox:-34.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:05, DTW:68.43, pH:7.09, temp:12.9, cond:2.21, turb:30.8, DO:0.62, redox:-34.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:05                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 68.43                                                                             |
| pH                               | 7.09                                                                              |
| Conductivity (mS/cm)             | 2.21                                                                              |
| Turbidity (NTU)                  | 30.8                                                                              |
| Dissolved Oxygen (mg/L)          | 0.62                                                                              |
| Temperature (Degrees Celsius)    | 12.9                                                                              |
| Redox (ORP mV)                   | -34.5                                                                             |
| parameters                       | @12:05, DTW:68.43, pH:7.09, temp:12.9, cond:2.21, turb:30.8, DO:0.62, redox:-34.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:10, DTW:68.43, pH:7.09, temp:13.2, cond:2.19, turb:28.3, DO:0.73, redox:-35.7**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 68.43                                                                             |
| pH                               | 7.09                                                                              |
| Conductivity (mS/cm)             | 2.19                                                                              |
| Turbidity (NTU)                  | 28.3                                                                              |
| Dissolved Oxygen (mg/L)          | 0.73                                                                              |
| Temperature (Degrees Celsius)    | 13.2                                                                              |
| Redox (ORP mV)                   | -35.7                                                                             |
| parameters                       | @12:10, DTW:68.43, pH:7.09, temp:13.2, cond:2.19, turb:28.3, DO:0.73, redox:-35.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:15, DTW:68.43, pH:7.09, temp:13.3, cond:2.17, turb:26.3, DO:0.88, redox:-36.7**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 68.43                                                                             |
| pH                               | 7.09                                                                              |
| Conductivity (mS/cm)             | 2.17                                                                              |
| Turbidity (NTU)                  | 26.3                                                                              |
| Dissolved Oxygen (mg/L)          | 0.88                                                                              |
| Temperature (Degrees Celsius)    | 13.3                                                                              |
| Redox (ORP mV)                   | -36.7                                                                             |
| parameters                       | @12:15, DTW:68.43, pH:7.09, temp:13.3, cond:2.17, turb:26.3, DO:0.88, redox:-36.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:20, DTW:68.43, pH:7.1, temp:13.5, cond:2.14, turb:26.2, DO:1.07, redox:-38.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 68.43                                                                            |
| pH                               | 7.1                                                                              |
| Conductivity (mS/cm)             | 2.14                                                                             |
| Turbidity (NTU)                  | 26.2                                                                             |
| Dissolved Oxygen (mg/L)          | 1.07                                                                             |
| Temperature (Degrees Celsius)    | 13.5                                                                             |
| Redox (ORP mV)                   | -38.8                                                                            |
| parameters                       | @12:20, DTW:68.43, pH:7.1, temp:13.5, cond:2.14, turb:26.2, DO:1.07, redox:-38.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:25, DTW:68.43, pH:7.09, temp:13, cond:2.11, turb:24.4, DO:1.02, redox:-40.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 68.43                                                                           |
| pH                               | 7.09                                                                            |
| Conductivity (mS/cm)             | 2.11                                                                            |
| Turbidity (NTU)                  | 24.4                                                                            |
| Dissolved Oxygen (mg/L)          | 1.02                                                                            |
| Temperature (Degrees Celsius)    | 13                                                                              |
| Redox (ORP mV)                   | -40.4                                                                           |
| parameters                       | @12:25, DTW:68.43, pH:7.09, temp:13, cond:2.11, turb:24.4, DO:1.02, redox:-40.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:30, DTW:68.43, pH:7.1, temp:13.1, cond:2.11, turb:24.5, DO:1.38, redox:-40.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 68.43                                                                            |
| pH                               | 7.1                                                                              |
| Conductivity (mS/cm)             | 2.11                                                                             |
| Turbidity (NTU)                  | 24.5                                                                             |
| Dissolved Oxygen (mg/L)          | 1.38                                                                             |
| Temperature (Degrees Celsius)    | 13.1                                                                             |
| Redox (ORP mV)                   | -40.4                                                                            |
| parameters                       | @12:30, DTW:68.43, pH:7.1, temp:13.1, cond:2.11, turb:24.5, DO:1.38, redox:-40.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:35, DTW:68.43, pH:7.11, temp:13.2, cond:2.09, turb:23.9, DO:1.43, redox:-41.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 68.43 |
| pH                               | 7.11  |
| Conductivity (mS/cm)             | 2.09  |
| Turbidity (NTU)                  | 23.9  |
| Dissolved Oxygen (mg/L)          | 1.43  |
| Temperature (Degrees Celsius)    | 13.2  |
| Redox (ORP mV)                   | -41.6 |

parameters

@12:35, DTW:68.43, pH:7.11, temp:13.2, cond:2.09, turb:23.9, DO:1.43, redox:-41.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 12:36   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 3       |
| Well Volumes Purged           | 0.12    |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:36 |
| Color         | Clear |
| Notable odors | None  |

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW-12-01 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature



Signed 2019-06-13 17:07:48 UTC

## 2019-06-12, MW-12-02, MW-12-02

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 12:18:50 EDT by Gary Schafer    |
| Updated                                                                                           | 2019-06-12 13:36:51 EDT by Christine Gregg |
| Location                                                                                          | 42.74020077, -84.5870184                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Gary Schafer                               |
| Date                                                                                              | 2019-06-12                                 |
| Well Identification                                                                               | MW-12-02                                   |
| Well ID                                                                                           | MW-12-02                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Sunny slight breeze temp 68                |

### Evacuation Details

|                                                                                                                                                                                                                                                                       |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                      | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                              | 4             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                           | 64.18         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                                  | 106           |
| Water Column                                                                                                                                                                                                                                                          | 41.82         |
| Gallons in Well                                                                                                                                                                                                                                                       | 27.18         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1 \text{ foot}$ ] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                          | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                                | Bladder       |
| Sample Method                                                                                                                                                                                                                                                         | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                              | 64.18         |
| Purge Start                                                                                                                                                                                                                                                           | 12:18         |

### @12:20, DTW:64.48, pH:6.91, temp:18.6, cond:1.22, turb:28.4, DO:0.67, redox:-63.1

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 12:20                                                                             |
| Rate (mL/min)                 | 150                                                                               |
| Depth to Water (ft)           | 64.48                                                                             |
| pH                            | 6.91                                                                              |
| Conductivity (mS/cm)          | 1.22                                                                              |
| Turbidity (NTU)               | 28.4                                                                              |
| Dissolved Oxygen (mg/L)       | 0.67                                                                              |
| Temperature (Degrees Celsius) | 18.6                                                                              |
| Redox (ORP mV)                | -63.1                                                                             |
| parameters                    | @12:20, DTW:64.48, pH:6.91, temp:18.6, cond:1.22, turb:28.4, DO:0.67, redox:-63.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:25, DTW:64.48, pH:6.91, temp:18.7, cond:1.22, turb:25.2, DO:0.43, redox:-63.4

|              |       |
|--------------|-------|
| Reading Time | 12:25 |
|--------------|-------|



|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 64.48                                                                             |
| pH                               | 6.91                                                                              |
| Conductivity (mS/cm)             | 1.22                                                                              |
| Turbidity (NTU)                  | 25.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.43                                                                              |
| Temperature (Degrees Celsius)    | 18.7                                                                              |
| Redox (ORP mV)                   | -63.4                                                                             |
| parameters                       | @12:25, DTW:64.48, pH:6.91, temp:18.7, cond:1.22, turb:25.2, DO:0.43, redox:-63.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:30, DTW:64.48, pH:6.91, temp:18.3, cond:1.21, turb:23.9, DO:0.42, redox:-65.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 64.48                                                                             |
| pH                               | 6.91                                                                              |
| Conductivity (mS/cm)             | 1.21                                                                              |
| Turbidity (NTU)                  | 23.9                                                                              |
| Dissolved Oxygen (mg/L)          | 0.42                                                                              |
| Temperature (Degrees Celsius)    | 18.3                                                                              |
| Redox (ORP mV)                   | -65.1                                                                             |
| parameters                       | @12:30, DTW:64.48, pH:6.91, temp:18.3, cond:1.21, turb:23.9, DO:0.42, redox:-65.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:35, DTW:64.48, pH:6.91, temp:18, cond:1.22, turb:21.7, DO:0.44, redox:-65**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 150                                                                           |
| Depth to Water (ft)              | 64.48                                                                         |
| pH                               | 6.91                                                                          |
| Conductivity (mS/cm)             | 1.22                                                                          |
| Turbidity (NTU)                  | 21.7                                                                          |
| Dissolved Oxygen (mg/L)          | 0.44                                                                          |
| Temperature (Degrees Celsius)    | 18                                                                            |
| Redox (ORP mV)                   | -65                                                                           |
| parameters                       | @12:35, DTW:64.48, pH:6.91, temp:18, cond:1.22, turb:21.7, DO:0.44, redox:-65 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:40, DTW:64.48, pH:6.92, temp:18.5, cond:1.21, turb:20.4, DO:0.36, redox:-66.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:40                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 64.48                                                                             |
| pH                               | 6.92                                                                              |
| Conductivity (mS/cm)             | 1.21                                                                              |
| Turbidity (NTU)                  | 20.4                                                                              |
| Dissolved Oxygen (mg/L)          | 0.36                                                                              |
| Temperature (Degrees Celsius)    | 18.5                                                                              |
| Redox (ORP mV)                   | -66.9                                                                             |
| parameters                       | @12:40, DTW:64.48, pH:6.92, temp:18.5, cond:1.21, turb:20.4, DO:0.36, redox:-66.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:45, DTW:64.48, pH:6.92, temp:18.4, cond:1.22, turb:20.4, DO:0.41, redox:-65.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:45                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 64.48                                                                             |
| pH                               | 6.92                                                                              |
| Conductivity (mS/cm)             | 1.22                                                                              |
| Turbidity (NTU)                  | 20.4                                                                              |
| Dissolved Oxygen (mg/L)          | 0.41                                                                              |
| Temperature (Degrees Celsius)    | 18.4                                                                              |
| Redox (ORP mV)                   | -65.2                                                                             |
| parameters                       | @12:45, DTW:64.48, pH:6.92, temp:18.4, cond:1.22, turb:20.4, DO:0.41, redox:-65.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:50, DTW:64.48, pH:6.91, temp:17.9, cond:1.23, turb:16.7, DO:0.55, redox:-65.8**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:50                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 64.48                                                                             |
| pH                               | 6.91                                                                              |
| Conductivity (mS/cm)             | 1.23                                                                              |
| Turbidity (NTU)                  | 16.7                                                                              |
| Dissolved Oxygen (mg/L)          | 0.55                                                                              |
| Temperature (Degrees Celsius)    | 17.9                                                                              |
| Redox (ORP mV)                   | -65.8                                                                             |
| parameters                       | @12:50, DTW:64.48, pH:6.91, temp:17.9, cond:1.23, turb:16.7, DO:0.55, redox:-65.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:55, DTW:64.48, pH:6.92, temp:18, cond:1.21, turb:17.7, DO:0.44, redox:-62.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:55                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 64.48                                                                           |
| pH                               | 6.92                                                                            |
| Conductivity (mS/cm)             | 1.21                                                                            |
| Turbidity (NTU)                  | 17.7                                                                            |
| Dissolved Oxygen (mg/L)          | 0.44                                                                            |
| Temperature (Degrees Celsius)    | 18                                                                              |
| Redox (ORP mV)                   | -62.4                                                                           |
| parameters                       | @12:55, DTW:64.48, pH:6.92, temp:18, cond:1.21, turb:17.7, DO:0.44, redox:-62.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:00, DTW:64.12, pH:6.92, temp:19.5, cond:1.21, turb:15.1, DO:0.44, redox:-50.7**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:00                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 64.12                                                                             |
| pH                               | 6.92                                                                              |
| Conductivity (mS/cm)             | 1.21                                                                              |
| Turbidity (NTU)                  | 15.1                                                                              |
| Dissolved Oxygen (mg/L)          | 0.44                                                                              |
| Temperature (Degrees Celsius)    | 19.5                                                                              |
| Redox (ORP mV)                   | -50.7                                                                             |
| parameters                       | @13:00, DTW:64.12, pH:6.92, temp:19.5, cond:1.21, turb:15.1, DO:0.44, redox:-50.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:05, DTW:64.12, pH:6.92, temp:19.6, cond:1.21, turb:13.5, DO:0.44, redox:-46.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:05                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 64.12                                                                             |
| pH                               | 6.92                                                                              |
| Conductivity (mS/cm)             | 1.21                                                                              |
| Turbidity (NTU)                  | 13.5                                                                              |
| Dissolved Oxygen (mg/L)          | 0.44                                                                              |
| Temperature (Degrees Celsius)    | 19.6                                                                              |
| Redox (ORP mV)                   | -46.1                                                                             |
| parameters                       | @13:05, DTW:64.12, pH:6.92, temp:19.6, cond:1.21, turb:13.5, DO:0.44, redox:-46.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:10, DTW:64.12, pH:6.91, temp:19.6, cond:1.21, turb:13.2, DO:0.52, redox:-64.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 64.12                                                                             |
| pH                               | 6.91                                                                              |
| Conductivity (mS/cm)             | 1.21                                                                              |
| Turbidity (NTU)                  | 13.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.52                                                                              |
| Temperature (Degrees Celsius)    | 19.6                                                                              |
| Redox (ORP mV)                   | -64.2                                                                             |
| parameters                       | @13:10, DTW:64.12, pH:6.91, temp:19.6, cond:1.21, turb:13.2, DO:0.52, redox:-64.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:15, DTW:64.12, pH:6.92, temp:19.7, cond:1.21, turb:12.3, DO:0.51, redox:-65.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 64.12                                                                             |
| pH                               | 6.92                                                                              |
| Conductivity (mS/cm)             | 1.21                                                                              |
| Turbidity (NTU)                  | 12.3                                                                              |
| Dissolved Oxygen (mg/L)          | 0.51                                                                              |
| Temperature (Degrees Celsius)    | 19.7                                                                              |
| Redox (ORP mV)                   | -65.1                                                                             |
| parameters                       | @13:15, DTW:64.12, pH:6.92, temp:19.7, cond:1.21, turb:12.3, DO:0.51, redox:-65.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:20, DTW:64.12, pH:6.92, temp:19.2, cond:1.21, turb:11.3, DO:0.52, redox:-64.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 64.12 |
| pH                               | 6.92  |
| Conductivity (mS/cm)             | 1.21  |
| Turbidity (NTU)                  | 11.3  |
| Dissolved Oxygen (mg/L)          | 0.52  |
| Temperature (Degrees Celsius)    | 19.2  |
| Redox (ORP mV)                   | -64.5 |

parameters

@13:20, DTW:64.12, pH:6.92, temp:19.2, cond:1.21, turb:11.3, DO:0.52, redox:-64.5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 13:21   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 3       |
| Well Volumes Purged           | 0.11    |

### Sample Information

|               |        |
|---------------|--------|
| Sample Time   | 13:21  |
| Color         | Clear  |
| Notable odors | Slight |

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW-12-02 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature

A handwritten signature in black ink, appearing to read "Gangster", written diagonally across the page.

Signed 2019-06-12 17:36:49 UTC



## 2019-06-10, MW-12-05R, MW-12-05R

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-10 12:29:23 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-10 13:51:09 EDT by Christine Gregg   |
| Location                                                                                          | 42.7378475, -84.5856607                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-10                                   |
| Well Identification                                                                               | MW-12-05R                                    |
| Well ID                                                                                           | MW-12-05R                                    |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Weather                                                                                           | Overcast                                     |

### Evacuation Details

|                                                                                                                                                                                                                                                           |                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing      |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 4                  |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 72.21              |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 117                |
| Water Column                                                                                                                                                                                                                                              | 44.790000000000006 |
| Gallons in Well                                                                                                                                                                                                                                           | 29.11              |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                    |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow           |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder            |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow           |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 110                |
| Purge Start                                                                                                                                                                                                                                               | 12:40              |

### @12:55, DTW:72.22, pH:7.66, temp:14.6, cond:1.6, turb:0.02, DO:0.05, redox:-101.1

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 12:55                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 72.22                                                                             |
| Milliliters Purged (total)    | 2000                                                                              |
| pH                            | 7.66                                                                              |
| Conductivity (mS/cm)          | 1.6                                                                               |
| Turbidity (NTU)               | 0.02                                                                              |
| Dissolved Oxygen (mg/L)       | 0.05                                                                              |
| Temperature (Degrees Celsius) | 14.6                                                                              |
| Redox (ORP mV)                | -101.1                                                                            |
| parameters                    | @12:55, DTW:72.22, pH:7.66, temp:14.6, cond:1.6, turb:0.02, DO:0.05, redox:-101.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:00, DTW:72.22, pH:7.72, temp:14.6, cond:1.61, turb:0.02, DO:0.05, redox:-145.6

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 13:00                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 72.22                                                                              |
| Milliliters Purged (total)       | 1000                                                                               |
| pH                               | 7.72                                                                               |
| Conductivity (mS/cm)             | 1.61                                                                               |
| Turbidity (NTU)                  | 0.02                                                                               |
| Dissolved Oxygen (mg/L)          | 0.05                                                                               |
| Temperature (Degrees Celsius)    | 14.6                                                                               |
| Redox (ORP mV)                   | -145.6                                                                             |
| parameters                       | @13:00, DTW:72.22, pH:7.72, temp:14.6, cond:1.61, turb:0.02, DO:0.05, redox:-145.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:05, DTW:72.22, pH:7.75, temp:14.6, cond:1.63, turb:0.02, DO:0.03, redox:-186.6**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 13:05                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 72.22                                                                              |
| Milliliters Purged (total)       | 1000                                                                               |
| pH                               | 7.75                                                                               |
| Conductivity (mS/cm)             | 1.63                                                                               |
| Turbidity (NTU)                  | 0.02                                                                               |
| Dissolved Oxygen (mg/L)          | 0.03                                                                               |
| Temperature (Degrees Celsius)    | 14.6                                                                               |
| Redox (ORP mV)                   | -186.6                                                                             |
| parameters                       | @13:05, DTW:72.22, pH:7.75, temp:14.6, cond:1.63, turb:0.02, DO:0.03, redox:-186.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:10, DTW:72.22, pH:7.81, temp:14.5, cond:1.68, turb:0.02, DO:0.03, redox:-225.5**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 13:10                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 72.22                                                                              |
| Milliliters Purged (total)       | 1000                                                                               |
| pH                               | 7.81                                                                               |
| Conductivity (mS/cm)             | 1.68                                                                               |
| Turbidity (NTU)                  | 0.02                                                                               |
| Dissolved Oxygen (mg/L)          | 0.03                                                                               |
| Temperature (Degrees Celsius)    | 14.5                                                                               |
| Redox (ORP mV)                   | -225.5                                                                             |
| parameters                       | @13:10, DTW:72.22, pH:7.81, temp:14.5, cond:1.68, turb:0.02, DO:0.03, redox:-225.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:15, DTW:72.22, pH:7.86, temp:14.6, cond:1.74, turb:0.02, DO:0.02, redox:-254.4**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 13:15                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 72.22                                                                              |
| Milliliters Purged (total)       | 1000                                                                               |
| pH                               | 7.86                                                                               |
| Conductivity (mS/cm)             | 1.74                                                                               |
| Turbidity (NTU)                  | 0.02                                                                               |
| Dissolved Oxygen (mg/L)          | 0.02                                                                               |
| Temperature (Degrees Celsius)    | 14.6                                                                               |
| Redox (ORP mV)                   | -254.4                                                                             |
| parameters                       | @13:15, DTW:72.22, pH:7.86, temp:14.6, cond:1.74, turb:0.02, DO:0.02, redox:-254.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:20, DTW:72.22, pH:7.86, temp:14.7, cond:1.78, turb:0.02, DO:0.03, redox:-250.3**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 72.22                                                                              |
| Milliliters Purged (total)       | 1000                                                                               |
| pH                               | 7.86                                                                               |
| Conductivity (mS/cm)             | 1.78                                                                               |
| Turbidity (NTU)                  | 0.02                                                                               |
| Dissolved Oxygen (mg/L)          | 0.03                                                                               |
| Temperature (Degrees Celsius)    | 14.7                                                                               |
| Redox (ORP mV)                   | -250.3                                                                             |
| parameters                       | @13:20, DTW:72.22, pH:7.86, temp:14.7, cond:1.78, turb:0.02, DO:0.03, redox:-250.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:25, DTW:72.22, pH:7.62, temp:15.1, cond:1.93, turb:0.02, DO:0.03, redox:-244.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 72.22 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7.62  |
| Conductivity (mS/cm)             | 1.93  |
| Turbidity (NTU)                  | 0.02  |

|                               |                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.03                                                                               |
| Temperature (Degrees Celsius) | 15.1                                                                               |
| Redox (ORP mV)                | -244.5                                                                             |
| parameters                    | @13:25, DTW:72.22, pH:7.62, temp:15.1, cond:1.93, turb:0.02, DO:0.03, redox:-244.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:30, DTW:72.22, pH:7.59, temp:15.3, cond:1.99, turb:0.02, DO:0.03, redox:-241**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 72.22                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.59                                                                             |
| Conductivity (mS/cm)             | 1.99                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.03                                                                             |
| Temperature (Degrees Celsius)    | 15.3                                                                             |
| Redox (ORP mV)                   | -241                                                                             |
| parameters                       | @13:30, DTW:72.22, pH:7.59, temp:15.3, cond:1.99, turb:0.02, DO:0.03, redox:-241 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:35, DTW:72.22, pH:7.52, temp:15.4, cond:2.03, turb:0.02, DO:0.04, redox:-238.2**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 72.22                                                                              |
| Milliliters Purged (total)       | 1000                                                                               |
| pH                               | 7.52                                                                               |
| Conductivity (mS/cm)             | 2.03                                                                               |
| Turbidity (NTU)                  | 0.02                                                                               |
| Dissolved Oxygen (mg/L)          | 0.04                                                                               |
| Temperature (Degrees Celsius)    | 15.4                                                                               |
| Redox (ORP mV)                   | -238.2                                                                             |
| parameters                       | @13:35, DTW:72.22, pH:7.52, temp:15.4, cond:2.03, turb:0.02, DO:0.04, redox:-238.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 13:35       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 10000       |
| Well Volumes Purged           | 0.09        |

## **Sample Information**

|               |       |
|---------------|-------|
| Sample Time   | 13:40 |
| Color         | Clear |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to be 'H. P. S.', is written on the page.

Signed 2019-06-10 16:43:41 UTC



## 2019-06-04, MW-12-06, MW-12-06

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-04 12:44:27 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-11 14:33:12 EDT by Christine Gregg   |
| Location                                                                                          | 42.7376624, -84.5838572                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-04                                   |
| Well Identification                                                                               | MW-12-06                                     |
| Well ID                                                                                           | MW-12-06                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Weather                                                                                           | Sunny, warm                                  |

### Evacuation Details

|                                                                                                                                                                                                                                                                       |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                      | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                              | 4             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                           | 69.65         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                                  | 104.5         |
| Water Column                                                                                                                                                                                                                                                          | 34.85         |
| Gallons in Well                                                                                                                                                                                                                                                       | 22.65         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1 \text{ foot}$ ] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                          | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                                | Bladder       |
| Sample Method                                                                                                                                                                                                                                                         | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                              | 100           |
| Purge Start                                                                                                                                                                                                                                                           | 12:40         |

### @12:50, DTW:65.6, pH:7.19, temp:18, cond:0.91, turb:0.05, DO:0.4, redox:103.8

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Reading Time                  | 12:50                                                                         |
| Rate (mL/min)                 | 200                                                                           |
| Depth to Water (ft)           | 65.6                                                                          |
| Milliliters Purged (total)    | 1000                                                                          |
| pH                            | 7.19                                                                          |
| Conductivity (mS/cm)          | 0.91                                                                          |
| Turbidity (NTU)               | 0.05                                                                          |
| Dissolved Oxygen (mg/L)       | 0.4                                                                           |
| Temperature (Degrees Celsius) | 18                                                                            |
| Redox (ORP mV)                | 103.8                                                                         |
| parameters                    | @12:50, DTW:65.6, pH:7.19, temp:18, cond:0.91, turb:0.05, DO:0.4, redox:103.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:55, DTW:65.6, pH:7.17, temp:20.1, cond:0.91, turb:0.2, DO:0.43, redox:107.4

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:55                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.6                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.17                                                                            |
| Conductivity (mS/cm)             | 0.91                                                                            |
| Turbidity (NTU)                  | 0.2                                                                             |
| Dissolved Oxygen (mg/L)          | 0.43                                                                            |
| Temperature (Degrees Celsius)    | 20.1                                                                            |
| Redox (ORP mV)                   | 107.4                                                                           |
| parameters                       | @12:55, DTW:65.6, pH:7.17, temp:20.1, cond:0.91, turb:0.2, DO:0.43, redox:107.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:00, DTW:65.6, pH:7.19, temp:18.2, cond:0.9, turb:0.23, DO:0.38, redox:108.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.6                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.19                                                                            |
| Conductivity (mS/cm)             | 0.9                                                                             |
| Turbidity (NTU)                  | 0.23                                                                            |
| Dissolved Oxygen (mg/L)          | 0.38                                                                            |
| Temperature (Degrees Celsius)    | 18.2                                                                            |
| Redox (ORP mV)                   | 108.5                                                                           |
| parameters                       | @13:00, DTW:65.6, pH:7.19, temp:18.2, cond:0.9, turb:0.23, DO:0.38, redox:108.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:05, DTW:65.6, pH:7.19, temp:17.4, cond:0.91, turb:0.21, DO:0.28, redox:110.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:05                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.6                                                                             |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.19                                                                             |
| Conductivity (mS/cm)             | 0.91                                                                             |
| Turbidity (NTU)                  | 0.21                                                                             |
| Dissolved Oxygen (mg/L)          | 0.28                                                                             |
| Temperature (Degrees Celsius)    | 17.4                                                                             |
| Redox (ORP mV)                   | 110.5                                                                            |
| parameters                       | @13:05, DTW:65.6, pH:7.19, temp:17.4, cond:0.91, turb:0.21, DO:0.28, redox:110.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:10, DTW:65.6, pH:7.18, temp:17.9, cond:0.9, turb:0.18, DO:0.24, redox:112.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:10                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.6                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.18                                                                            |
| Conductivity (mS/cm)             | 0.9                                                                             |
| Turbidity (NTU)                  | 0.18                                                                            |
| Dissolved Oxygen (mg/L)          | 0.24                                                                            |
| Temperature (Degrees Celsius)    | 17.9                                                                            |
| Redox (ORP mV)                   | 112.2                                                                           |
| parameters                       | @13:10, DTW:65.6, pH:7.18, temp:17.9, cond:0.9, turb:0.18, DO:0.24, redox:112.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:15, DTW:65.6, pH:7.19, temp:17.6, cond:0.9, turb:0.23, DO:0.23, redox:112.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.6                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.19                                                                            |
| Conductivity (mS/cm)             | 0.9                                                                             |
| Turbidity (NTU)                  | 0.23                                                                            |
| Dissolved Oxygen (mg/L)          | 0.23                                                                            |
| Temperature (Degrees Celsius)    | 17.6                                                                            |
| Redox (ORP mV)                   | 112.2                                                                           |
| parameters                       | @13:15, DTW:65.6, pH:7.19, temp:17.6, cond:0.9, turb:0.23, DO:0.23, redox:112.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 13:15       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 7000        |
| Well Volumes Purged           | 0.08        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:20 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to be 'AR-1'.

Signed 2019-06-04 16:47:01 UTC

## 2019-12-04, MW-12-09

|                                                                                                   |                                           |
|---------------------------------------------------------------------------------------------------|-------------------------------------------|
| Created                                                                                           | 2019-12-04 16:21:06 UTC by Melissa Weaver |
| Updated                                                                                           | 2019-12-04 18:06:54 UTC by Melissa Weaver |
| Location                                                                                          | 42.7375169238474, -84.5872939937604       |
| Project Number                                                                                    | 30006870                                  |
| Project Name / Location                                                                           | RACER Lansing, MI                         |
| Sampler Name                                                                                      | Melissa Weaver                            |
| Date                                                                                              | 2019-12-04                                |
| Well ID                                                                                           | MW-12-09                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                       |
| Weather                                                                                           | 34 Cloudy                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 13.63         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 21.56         |
| Water Column                                                                                                                                                                                                                                                 | 7.93          |
| Gallons in Well                                                                                                                                                                                                                                              | 1.29          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 19            |
| Purge Start                                                                                                                                                                                                                                                  | 11:40         |

### @11:40, DTW:13.65, pH:7.2, temp:12.5, cond:2.13, turb:38.7, DO:0.33, redox:-80

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 11:40                                                                          |
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 13.65                                                                          |
| pH                            | 7.2                                                                            |
| Conductivity (mS/cm)          | 2.13                                                                           |
| Turbidity (NTU)               | 38.7                                                                           |
| Dissolved Oxygen (mg/L)       | 0.33                                                                           |
| Temperature (Degrees Celsius) | 12.5                                                                           |
| Redox (ORP mV)                | -80                                                                            |
| parameters                    | @11:40, DTW:13.65, pH:7.2, temp:12.5, cond:2.13, turb:38.7, DO:0.33, redox:-80 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:45, DTW:13.65, pH:6.88, temp:13.2, cond:2.18, turb:39.6, DO:0.17, redox:-59.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:45 |
| Minutes Elapsed between readings | 5     |



|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 13.65                                                                             |
| pH                            | 6.88                                                                              |
| Conductivity (mS/cm)          | 2.18                                                                              |
| Turbidity (NTU)               | 39.6                                                                              |
| Dissolved Oxygen (mg/L)       | 0.17                                                                              |
| Temperature (Degrees Celsius) | 13.2                                                                              |
| Redox (ORP mV)                | -59.1                                                                             |
| parameters                    | @11:45, DTW:13.65, pH:6.88, temp:13.2, cond:2.18, turb:39.6, DO:0.17, redox:-59.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:50, DTW:13.65, pH:6.9, temp:12.9, cond:2.22, turb:30.9, DO:0.35, redox:-53.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:50                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 13.65                                                                            |
| pH                               | 6.9                                                                              |
| Conductivity (mS/cm)             | 2.22                                                                             |
| Turbidity (NTU)                  | 30.9                                                                             |
| Dissolved Oxygen (mg/L)          | 0.35                                                                             |
| Temperature (Degrees Celsius)    | 12.9                                                                             |
| Redox (ORP mV)                   | -53.2                                                                            |
| parameters                       | @11:50, DTW:13.65, pH:6.9, temp:12.9, cond:2.22, turb:30.9, DO:0.35, redox:-53.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:55, DTW:13.65, pH:6.83, temp:13.3, cond:2.61, turb:19.5, DO:0.15, redox:-46.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:55                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 13.65                                                                             |
| pH                               | 6.83                                                                              |
| Conductivity (mS/cm)             | 2.61                                                                              |
| Turbidity (NTU)                  | 19.5                                                                              |
| Dissolved Oxygen (mg/L)          | 0.15                                                                              |
| Temperature (Degrees Celsius)    | 13.3                                                                              |
| Redox (ORP mV)                   | -46.9                                                                             |
| parameters                       | @11:55, DTW:13.65, pH:6.83, temp:13.3, cond:2.61, turb:19.5, DO:0.15, redox:-46.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:00, DTW:13.65, pH:6.87, temp:13, cond:2.29, turb:11.5, DO:0.17, redox:-43.9**

|              |       |
|--------------|-------|
| Reading Time | 12:00 |
|--------------|-------|

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 13.65                                                                           |
| pH                               | 6.87                                                                            |
| Conductivity (mS/cm)             | 2.29                                                                            |
| Turbidity (NTU)                  | 11.5                                                                            |
| Dissolved Oxygen (mg/L)          | 0.17                                                                            |
| Temperature (Degrees Celsius)    | 13                                                                              |
| Redox (ORP mV)                   | -43.9                                                                           |
| parameters                       | @12:00, DTW:13.65, pH:6.87, temp:13, cond:2.29, turb:11.5, DO:0.17, redox:-43.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:05, DTW:13.65, pH:6.87, temp:13.3, cond:2.27, turb:7.15, DO:0.18, redox:-40.7**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:05                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 13.65                                                                             |
| pH                               | 6.87                                                                              |
| Conductivity (mS/cm)             | 2.27                                                                              |
| Turbidity (NTU)                  | 7.15                                                                              |
| Dissolved Oxygen (mg/L)          | 0.18                                                                              |
| Temperature (Degrees Celsius)    | 13.3                                                                              |
| Redox (ORP mV)                   | -40.7                                                                             |
| parameters                       | @12:05, DTW:13.65, pH:6.87, temp:13.3, cond:2.27, turb:7.15, DO:0.18, redox:-40.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:10, DTW:13.65, pH:6.87, temp:13.3, cond:2.28, turb:5.41, DO:0.19, redox:-37.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 13.65                                                                             |
| pH                               | 6.87                                                                              |
| Conductivity (mS/cm)             | 2.28                                                                              |
| Turbidity (NTU)                  | 5.41                                                                              |
| Dissolved Oxygen (mg/L)          | 0.19                                                                              |
| Temperature (Degrees Celsius)    | 13.3                                                                              |
| Redox (ORP mV)                   | -37.5                                                                             |
| parameters                       | @12:10, DTW:13.65, pH:6.87, temp:13.3, cond:2.28, turb:5.41, DO:0.19, redox:-37.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:15, DTW:13.65, pH:6.87, temp:13.1, cond:2.29, turb:2.91, DO:0.15, redox:-35.6**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 13.65                                                                             |
| pH                               | 6.87                                                                              |
| Conductivity (mS/cm)             | 2.29                                                                              |
| Turbidity (NTU)                  | 2.91                                                                              |
| Dissolved Oxygen (mg/L)          | 0.15                                                                              |
| Temperature (Degrees Celsius)    | 13.1                                                                              |
| Redox (ORP mV)                   | -35.6                                                                             |
| parameters                       | @12:15, DTW:13.65, pH:6.87, temp:13.1, cond:2.29, turb:2.91, DO:0.15, redox:-35.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:20, DTW:13.65, pH:6.86, temp:13.5, cond:2.29, turb:3.1, DO:0.14, redox:-34.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 13.65                                                                            |
| pH                               | 6.86                                                                             |
| Conductivity (mS/cm)             | 2.29                                                                             |
| Turbidity (NTU)                  | 3.1                                                                              |
| Dissolved Oxygen (mg/L)          | 0.14                                                                             |
| Temperature (Degrees Celsius)    | 13.5                                                                             |
| Redox (ORP mV)                   | -34.4                                                                            |
| parameters                       | @12:20, DTW:13.65, pH:6.86, temp:13.5, cond:2.29, turb:3.1, DO:0.14, redox:-34.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:25, DTW:13.65, pH:6.86, temp:13.1, cond:2.3, turb:0.03, DO:0.14, redox:-33.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 13.65                                                                            |
| pH                               | 6.86                                                                             |
| Conductivity (mS/cm)             | 2.3                                                                              |
| Turbidity (NTU)                  | 0.03                                                                             |
| Dissolved Oxygen (mg/L)          | 0.14                                                                             |
| Temperature (Degrees Celsius)    | 13.1                                                                             |
| Redox (ORP mV)                   | -33.1                                                                            |
| parameters                       | @12:25, DTW:13.65, pH:6.86, temp:13.1, cond:2.3, turb:0.03, DO:0.14, redox:-33.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:30, DTW:13.65, pH:6.86, temp:13.1, cond:2.3, turb:0.12, DO:0.13, redox:-32.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 13.65                                                                            |
| pH                               | 6.86                                                                             |
| Conductivity (mS/cm)             | 2.3                                                                              |
| Turbidity (NTU)                  | 0.12                                                                             |
| Dissolved Oxygen (mg/L)          | 0.13                                                                             |
| Temperature (Degrees Celsius)    | 13.1                                                                             |
| Redox (ORP mV)                   | -32.2                                                                            |
| parameters                       | @12:30, DTW:13.65, pH:6.86, temp:13.1, cond:2.3, turb:0.12, DO:0.13, redox:-32.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:35, DTW:13.65, pH:6.85, temp:13, cond:2.3, turb:0.02, DO:0.13, redox:-31.2**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 13.65                                                                          |
| pH                               | 6.85                                                                           |
| Conductivity (mS/cm)             | 2.3                                                                            |
| Turbidity (NTU)                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)          | 0.13                                                                           |
| Temperature (Degrees Celsius)    | 13                                                                             |
| Redox (ORP mV)                   | -31.2                                                                          |
| parameters                       | @12:35, DTW:13.65, pH:6.85, temp:13, cond:2.3, turb:0.02, DO:0.13, redox:-31.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 12:35 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:35 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                   |         |
|-------------------|---------|
| Well Location     | Plant 2 |
| Condition of Well | Good    |

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature

A handwritten signature in black ink, appearing to be 'ML' or similar, written in a cursive style.

Signed 2019-12-04 16:22:37 UTC



## 2019-06-12, MW-12-11, MW-12-11

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 09:49:01 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-12 10:12:41 EDT by Christine Gregg |
| Location                                                                                          | 42.73890731, -84.57922499                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-12                                 |
| Well Identification                                                                               | MW-12-11                                   |
| Well ID                                                                                           | MW-12-11                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Mostly Cloudy 60's                         |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 2.48          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 16.7          |
| Water Column                                                                                                                                                                                                                                              | 14.22         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.31          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 14            |
| Purge Start                                                                                                                                                                                                                                               | 09:30         |

### @09:30, DTW:2.48, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 09:30                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 2.48                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @09:30, DTW:2.48, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:35, DTW:2.92, pH:6.55, temp:13.3, cond:0.548, turb:18.3, DO:3.51, redox:172.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 2.92  |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.55  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.548                                                                             |
| Turbidity (NTU)               | 18.3                                                                              |
| Dissolved Oxygen (mg/L)       | 3.51                                                                              |
| Temperature (Degrees Celsius) | 13.3                                                                              |
| Redox (ORP mV)                | 172.3                                                                             |
| parameters                    | @09:35, DTW:2.92, pH:6.55, temp:13.3, cond:0.548, turb:18.3, DO:3.51, redox:172.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@09:40, DTW:3.21, pH:6.71, temp:13, cond:0.515, turb:15.9, DO:3.27, redox:160.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 3.21                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 6.71                                                                            |
| Conductivity (mS/cm)             | 0.515                                                                           |
| Turbidity (NTU)                  | 15.9                                                                            |
| Dissolved Oxygen (mg/L)          | 3.27                                                                            |
| Temperature (Degrees Celsius)    | 13                                                                              |
| Redox (ORP mV)                   | 160.4                                                                           |
| parameters                       | @09:40, DTW:3.21, pH:6.71, temp:13, cond:0.515, turb:15.9, DO:3.27, redox:160.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@09:45, DTW:3.49, pH:6.72, temp:12.9, cond:0.512, turb:14.1, DO:3.29, redox:157.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 3.49                                                                              |
| Milliliters Purged (total)       | 1500                                                                              |
| pH                               | 6.72                                                                              |
| Conductivity (mS/cm)             | 0.512                                                                             |
| Turbidity (NTU)                  | 14.1                                                                              |
| Dissolved Oxygen (mg/L)          | 3.29                                                                              |
| Temperature (Degrees Celsius)    | 12.9                                                                              |
| Redox (ORP mV)                   | 157.9                                                                             |
| parameters                       | @09:45, DTW:3.49, pH:6.72, temp:12.9, cond:0.512, turb:14.1, DO:3.29, redox:157.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@09:50, DTW:3.64, pH:6.74, temp:12.8, cond:0.511, turb:10.9, DO:3.34, redox:154.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:50 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                               |
| Depth to Water (ft)           | 3.64                                                                              |
| Milliliters Purged (total)    | 2000                                                                              |
| pH                            | 6.74                                                                              |
| Conductivity (mS/cm)          | 0.511                                                                             |
| Turbidity (NTU)               | 10.9                                                                              |
| Dissolved Oxygen (mg/L)       | 3.34                                                                              |
| Temperature (Degrees Celsius) | 12.8                                                                              |
| Redox (ORP mV)                | 154.7                                                                             |
| parameters                    | @09:50, DTW:3.64, pH:6.74, temp:12.8, cond:0.511, turb:10.9, DO:3.34, redox:154.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:55, DTW:3.81, pH:6.75, temp:12.7, cond:0.513, turb:9.01, DO:3.33, redox:151**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:55                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 3.81                                                                            |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 6.75                                                                            |
| Conductivity (mS/cm)             | 0.513                                                                           |
| Turbidity (NTU)                  | 9.01                                                                            |
| Dissolved Oxygen (mg/L)          | 3.33                                                                            |
| Temperature (Degrees Celsius)    | 12.7                                                                            |
| Redox (ORP mV)                   | 151                                                                             |
| parameters                       | @09:55, DTW:3.81, pH:6.75, temp:12.7, cond:0.513, turb:9.01, DO:3.33, redox:151 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:00, DTW:3.98, pH:6.76, temp:12.8, cond:0.52, turb:8.43, DO:3.24, redox:147.9**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 3.98                                                                             |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 6.76                                                                             |
| Conductivity (mS/cm)             | 0.52                                                                             |
| Turbidity (NTU)                  | 8.43                                                                             |
| Dissolved Oxygen (mg/L)          | 3.24                                                                             |
| Temperature (Degrees Celsius)    | 12.8                                                                             |
| Redox (ORP mV)                   | 147.9                                                                            |
| parameters                       | @10:00, DTW:3.98, pH:6.76, temp:12.8, cond:0.52, turb:8.43, DO:3.24, redox:147.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:05, DTW:4.09, pH:6.78, temp:12.7, cond:0.551, turb:6.89, DO:2.92, redox:141.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:05                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 4.09                                                                              |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 6.78                                                                              |
| Conductivity (mS/cm)             | 0.551                                                                             |
| Turbidity (NTU)                  | 6.89                                                                              |
| Dissolved Oxygen (mg/L)          | 2.92                                                                              |
| Temperature (Degrees Celsius)    | 12.7                                                                              |
| Redox (ORP mV)                   | 141.2                                                                             |
| parameters                       | @10:05, DTW:4.09, pH:6.78, temp:12.7, cond:0.551, turb:6.89, DO:2.92, redox:141.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:10, DTW:4.18, pH:6.8, temp:12.8, cond:0.585, turb:6.02, DO:2.61, redox:136.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 4.18                                                                             |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 6.8                                                                              |
| Conductivity (mS/cm)             | 0.585                                                                            |
| Turbidity (NTU)                  | 6.02                                                                             |
| Dissolved Oxygen (mg/L)          | 2.61                                                                             |
| Temperature (Degrees Celsius)    | 12.8                                                                             |
| Redox (ORP mV)                   | 136.5                                                                            |
| parameters                       | @10:10, DTW:4.18, pH:6.8, temp:12.8, cond:0.585, turb:6.02, DO:2.61, redox:136.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:15, DTW:4.29, pH:6.81, temp:12.9, cond:0.584, turb:5.63, DO:2.44, redox:131.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 4.29  |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.81  |
| Conductivity (mS/cm)             | 0.584 |
| Turbidity (NTU)                  | 5.63  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 2.44                                                                              |
| Temperature (Degrees Celsius) | 12.9                                                                              |
| Redox (ORP mV)                | 131.7                                                                             |
| parameters                    | @10:15, DTW:4.29, pH:6.81, temp:12.9, cond:0.584, turb:5.63, DO:2.44, redox:131.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:20, DTW:4.38, pH:6.82, temp:12.9, cond:0.591, turb:5.2, DO:2.45, redox:127.5

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 4.38                                                                             |
| Milliliters Purged (total)       | 5000                                                                             |
| pH                               | 6.82                                                                             |
| Conductivity (mS/cm)             | 0.591                                                                            |
| Turbidity (NTU)                  | 5.2                                                                              |
| Dissolved Oxygen (mg/L)          | 2.45                                                                             |
| Temperature (Degrees Celsius)    | 12.9                                                                             |
| Redox (ORP mV)                   | 127.5                                                                            |
| parameters                       | @10:20, DTW:4.38, pH:6.82, temp:12.9, cond:0.591, turb:5.2, DO:2.45, redox:127.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 10:20       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 5000        |
| Well Volumes Purged           | 0.57        |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:20 |
| Color         | Clear |
| Notable odors | No    |

### Metals, Total

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | Metals, Total  |
| Container Type       | 125 mL Plastic |
| Number of Containers | 1              |
| Preservative         | HNO3           |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information



|                          |                          |
|--------------------------|--------------------------|
| Well Location            | Off site East of Plant 6 |
| Condition of Well        | Good                     |
| Well Locked at Arrival   | No                       |
| Well Locked at Departure | No                       |
| Photo of Well            |                          |



|           |                                   |
|-----------|-----------------------------------|
| Comments  | Didn't meet drawdown requirements |
| Signature |                                   |

3411

Signed 2019-06-12 13:55:02 UTC

## 2019-06-12, MW-12-12, MW-12-12

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 11:30:23 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-12 11:49:10 EDT by Christine Gregg |
| Location                                                                                          | 42.73851584, -84.57826735                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-12                                 |
| Well Identification                                                                               | MW-12-12                                   |
| Well ID                                                                                           | MW-12-12                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Mostly Cloudy Windy 60's                   |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 4.78          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 17.2          |
| Water Column                                                                                                                                                                                                                                              | 12.42         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.02          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 15            |
| Purge Start                                                                                                                                                                                                                                               | 11:30         |

### @11:30, DTW:4.78, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 11:30                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 4.78                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @11:30, DTW:4.78, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:35, DTW:5.15, pH:7.65, temp:14.1, cond:0.595, turb:9.02, DO:0.68, redox:-14.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 5.15  |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.65  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.595                                                                             |
| Turbidity (NTU)               | 9.02                                                                              |
| Dissolved Oxygen (mg/L)       | 0.68                                                                              |
| Temperature (Degrees Celsius) | 14.1                                                                              |
| Redox (ORP mV)                | -14.1                                                                             |
| parameters                    | @11:35, DTW:5.15, pH:7.65, temp:14.1, cond:0.595, turb:9.02, DO:0.68, redox:-14.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:40, DTW:5.31, pH:7.63, temp:13.9, cond:0.578, turb:8.17, DO:0.63, redox:-1.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 5.31                                                                             |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.63                                                                             |
| Conductivity (mS/cm)             | 0.578                                                                            |
| Turbidity (NTU)                  | 8.17                                                                             |
| Dissolved Oxygen (mg/L)          | 0.63                                                                             |
| Temperature (Degrees Celsius)    | 13.9                                                                             |
| Redox (ORP mV)                   | -1.3                                                                             |
| parameters                       | @11:40, DTW:5.31, pH:7.63, temp:13.9, cond:0.578, turb:8.17, DO:0.63, redox:-1.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:45, DTW:5.47, pH:7.63, temp:13.9, cond:0.575, turb:7.17, DO:0.64, redox:0.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 5.47                                                                            |
| Milliliters Purged (total)       | 1500                                                                            |
| pH                               | 7.63                                                                            |
| Conductivity (mS/cm)             | 0.575                                                                           |
| Turbidity (NTU)                  | 7.17                                                                            |
| Dissolved Oxygen (mg/L)          | 0.64                                                                            |
| Temperature (Degrees Celsius)    | 13.9                                                                            |
| Redox (ORP mV)                   | 0.7                                                                             |
| parameters                       | @11:45, DTW:5.47, pH:7.63, temp:13.9, cond:0.575, turb:7.17, DO:0.64, redox:0.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:50, DTW:5.55, pH:7.63, temp:13.9, cond:0.573, turb:8.23, DO:0.65, redox:2.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:50 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                             |
| Depth to Water (ft)           | 5.55                                                                            |
| Milliliters Purged (total)    | 2000                                                                            |
| pH                            | 7.63                                                                            |
| Conductivity (mS/cm)          | 0.573                                                                           |
| Turbidity (NTU)               | 8.23                                                                            |
| Dissolved Oxygen (mg/L)       | 0.65                                                                            |
| Temperature (Degrees Celsius) | 13.9                                                                            |
| Redox (ORP mV)                | 2.3                                                                             |
| parameters                    | @11:50, DTW:5.55, pH:7.63, temp:13.9, cond:0.573, turb:8.23, DO:0.65, redox:2.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:55, DTW:5.61, pH:7.62, temp:13.9, cond:0.572, turb:7.01, DO:0.65, redox:2.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:55                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 5.61                                                                            |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 7.62                                                                            |
| Conductivity (mS/cm)             | 0.572                                                                           |
| Turbidity (NTU)                  | 7.01                                                                            |
| Dissolved Oxygen (mg/L)          | 0.65                                                                            |
| Temperature (Degrees Celsius)    | 13.9                                                                            |
| Redox (ORP mV)                   | 2.5                                                                             |
| parameters                       | @11:55, DTW:5.61, pH:7.62, temp:13.9, cond:0.572, turb:7.01, DO:0.65, redox:2.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:00, DTW:5.64, pH:7.62, temp:13.8, cond:0.572, turb:6.69, DO:0.68, redox:1**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 12:00                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 5.64                                                                          |
| Milliliters Purged (total)       | 3000                                                                          |
| pH                               | 7.62                                                                          |
| Conductivity (mS/cm)             | 0.572                                                                         |
| Turbidity (NTU)                  | 6.69                                                                          |
| Dissolved Oxygen (mg/L)          | 0.68                                                                          |
| Temperature (Degrees Celsius)    | 13.8                                                                          |
| Redox (ORP mV)                   | 1                                                                             |
| parameters                       | @12:00, DTW:5.64, pH:7.62, temp:13.8, cond:0.572, turb:6.69, DO:0.68, redox:1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:05, DTW:5.69, pH:7.61, temp:13.7, cond:0.573, turb:6.07, DO:0.68, redox:3.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:05                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 5.69                                                                            |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 7.61                                                                            |
| Conductivity (mS/cm)             | 0.573                                                                           |
| Turbidity (NTU)                  | 6.07                                                                            |
| Dissolved Oxygen (mg/L)          | 0.68                                                                            |
| Temperature (Degrees Celsius)    | 13.7                                                                            |
| Redox (ORP mV)                   | 3.5                                                                             |
| parameters                       | @12:05, DTW:5.69, pH:7.61, temp:13.7, cond:0.573, turb:6.07, DO:0.68, redox:3.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 12:05       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 3500        |
| Well Volumes Purged           | 0.46        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:05 |
| Color         | Clear |
| Notable odors | No    |

## Metals, Total

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | Metals, Total  |
| Container Type       | 125 mL Plastic |
| Number of Containers | 1              |
| Preservative         | HNO3           |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |                      |
|--------------------------|----------------------|
| Well Location            | NE corner of Plant 6 |
| Condition of Well        | Fair                 |
| Well Locked at Arrival   | No                   |
| Well Locked at Departure | No                   |

Photo of Well



Comments

No bolts, didn't meet drawdown requirements

Signature

34/L

Signed 2019-06-12 15:38:34 UTC



## 2019-08-27, MW-12-12

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 15:56:48 UTC by Gary Schafer |
| Updated                                                                                           | 2020-03-31 18:23:25 UTC by Gary Schafer |
| Location                                                                                          | 42.5031685642891, -83.442722346425      |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-08-27                              |
| Well ID                                                                                           | MW-12-12                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 10.1          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 17.2          |
| Water Column                                                                                                                                                                                                                                              | 7.1           |
| Gallons in Well                                                                                                                                                                                                                                           | 1.15          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                               | 10:35         |

### @10:36, DTW:10.1, pH:7.06, temp:17.2, cond:0.97, turb:19.1, DO:1.12, redox:129.6

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 10:36                                                                            |
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 10.1                                                                             |
| pH                            | 7.06                                                                             |
| Conductivity (mS/cm)          | 0.97                                                                             |
| Turbidity (NTU)               | 19.1                                                                             |
| Dissolved Oxygen (mg/L)       | 1.12                                                                             |
| Temperature (Degrees Celsius) | 17.2                                                                             |
| Redox (ORP mV)                | 129.6                                                                            |
| parameters                    | @10:36, DTW:10.1, pH:7.06, temp:17.2, cond:0.97, turb:19.1, DO:1.12, redox:129.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:41, DTW:12.7, pH:7.03, temp:17.2, cond:0.84, turb:11.4, DO:0.52, redox:133.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:41 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 12.7  |

|                               |       |
|-------------------------------|-------|
| pH                            | 7.03  |
| Conductivity (mS/cm)          | 0.84  |
| Turbidity (NTU)               | 11.4  |
| Dissolved Oxygen (mg/L)       | 0.52  |
| Temperature (Degrees Celsius) | 17.2  |
| Redox (ORP mV)                | 133.1 |

parameters @10:41, DTW:12.7, pH:7.03, temp:17.2, cond:0.84, turb:11.4, DO:0.52, redox:133.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:46, DTW:13.29, pH:7.01, temp:17.6, cond:0.72, turb:8.81, DO:0.21, redox:132.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:46 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 13.29 |
| pH                               | 7.01  |
| Conductivity (mS/cm)             | 0.72  |
| Turbidity (NTU)                  | 8.81  |
| Dissolved Oxygen (mg/L)          | 0.21  |
| Temperature (Degrees Celsius)    | 17.6  |
| Redox (ORP mV)                   | 132.9 |

parameters @10:46, DTW:13.29, pH:7.01, temp:17.6, cond:0.72, turb:8.81, DO:0.21, redox:132.9

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:51, DTW:13.95, pH:7.04, temp:17.7, cond:0.74, turb:11.8, DO:0.13, redox:130.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:51 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 13.95 |
| pH                               | 7.04  |
| Conductivity (mS/cm)             | 0.74  |
| Turbidity (NTU)                  | 11.8  |
| Dissolved Oxygen (mg/L)          | 0.13  |
| Temperature (Degrees Celsius)    | 17.7  |
| Redox (ORP mV)                   | 130.1 |

parameters @10:51, DTW:13.95, pH:7.04, temp:17.7, cond:0.74, turb:11.8, DO:0.13, redox:130.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:56, DTW:14.3, pH:7.07, temp:17.6, cond:0.75, turb:9.6, DO:0.25, redox:126.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:56 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Depth to Water (ft)           | 14.3                                                                            |
| pH                            | 7.07                                                                            |
| Conductivity (mS/cm)          | 0.75                                                                            |
| Turbidity (NTU)               | 9.6                                                                             |
| Dissolved Oxygen (mg/L)       | 0.25                                                                            |
| Temperature (Degrees Celsius) | 17.6                                                                            |
| Redox (ORP mV)                | 126.6                                                                           |
| parameters                    | @10:56, DTW:14.3, pH:7.07, temp:17.6, cond:0.75, turb:9.6, DO:0.25, redox:126.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:01, DTW:14.95, pH:7.05, temp:17.6, cond:0.75, turb:8.6, DO:0.23, redox:128.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:01                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 14.95                                                                            |
| pH                               | 7.05                                                                             |
| Conductivity (mS/cm)             | 0.75                                                                             |
| Turbidity (NTU)                  | 8.6                                                                              |
| Dissolved Oxygen (mg/L)          | 0.23                                                                             |
| Temperature (Degrees Celsius)    | 17.6                                                                             |
| Redox (ORP mV)                   | 128.1                                                                            |
| parameters                       | @11:01, DTW:14.95, pH:7.05, temp:17.6, cond:0.75, turb:8.6, DO:0.23, redox:128.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 11:08   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 1.5     |
| Well Volumes Purged           | 1.3     |

### **Sample Information**

|               |       |
|---------------|-------|
| Sample Time   | 11:02 |
| Color         | Clear |
| Notable odors | None  |

### **Well Information**

|                          |          |
|--------------------------|----------|
| Well Location            | MW 12-12 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature

Gary  
Schubert

Signed 2020-03-31 18:23:23 UTC

---

## 2019-12-03, MW-12-12

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-03 16:45:04 UTC by Gary Schafer |
| Updated                                                                                           | 2019-12-05 16:20:42 UTC by Gary Schafer |
| Location                                                                                          | 42.7384702396046, -84.578309850846      |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-12-03                              |
| Well ID                                                                                           | MW-12-12                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Overcast / slight wind temp 31          |

## Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 4.88          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 17.2          |
| Water Column                                                                                                                                                                                                                                                 | 12.32         |
| Gallons in Well                                                                                                                                                                                                                                              | 2.0           |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 7.98          |
| Purge Start                                                                                                                                                                                                                                                  | 11:41         |

## @11:46, DTW:5.48, pH:6.98, temp:10.9, cond:2973, turb:51.1, DO:3.59, redox:28.5

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 11:46                                                                           |
| Rate (mL/min)                 | 100                                                                             |
| Depth to Water (ft)           | 5.48                                                                            |
| pH                            | 6.98                                                                            |
| Conductivity (mS/cm)          | 2973                                                                            |
| Turbidity (NTU)               | 51.1                                                                            |
| Dissolved Oxygen (mg/L)       | 3.59                                                                            |
| Temperature (Degrees Celsius) | 10.9                                                                            |
| Redox (ORP mV)                | 28.5                                                                            |
| parameters                    | @11:46, DTW:5.48, pH:6.98, temp:10.9, cond:2973, turb:51.1, DO:3.59, redox:28.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

## @11:51, DTW:6.1, pH:7.32, temp:11.1, cond:1250, turb:20, DO:0.75, redox:13.6

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:51 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                          |
| Depth to Water (ft)           | 6.1                                                                          |
| pH                            | 7.32                                                                         |
| Conductivity (mS/cm)          | 1250                                                                         |
| Turbidity (NTU)               | 20                                                                           |
| Dissolved Oxygen (mg/L)       | 0.75                                                                         |
| Temperature (Degrees Celsius) | 11.1                                                                         |
| Redox (ORP mV)                | 13.6                                                                         |
| parameters                    | @11:51, DTW:6.1, pH:7.32, temp:11.1, cond:1250, turb:20, DO:0.75, redox:13.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:56, DTW:7.2, pH:7.36, temp:11, cond:880, turb:13.9, DO:0.42, redox:11**

|                                  |                                                                           |
|----------------------------------|---------------------------------------------------------------------------|
| Reading Time                     | 11:56                                                                     |
| Minutes Elapsed between readings | 5                                                                         |
| Rate (mL/min)                    | 100                                                                       |
| Depth to Water (ft)              | 7.2                                                                       |
| pH                               | 7.36                                                                      |
| Conductivity (mS/cm)             | 880                                                                       |
| Turbidity (NTU)                  | 13.9                                                                      |
| Dissolved Oxygen (mg/L)          | 0.42                                                                      |
| Temperature (Degrees Celsius)    | 11                                                                        |
| Redox (ORP mV)                   | 11                                                                        |
| parameters                       | @11:56, DTW:7.2, pH:7.36, temp:11, cond:880, turb:13.9, DO:0.42, redox:11 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:01, DTW:7.5, pH:7.37, temp:11.2, cond:832, turb:12.6, DO:0.36, redox:22.4**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 12:01                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 7.5                                                                           |
| pH                               | 7.37                                                                          |
| Conductivity (mS/cm)             | 832                                                                           |
| Turbidity (NTU)                  | 12.6                                                                          |
| Dissolved Oxygen (mg/L)          | 0.36                                                                          |
| Temperature (Degrees Celsius)    | 11.2                                                                          |
| Redox (ORP mV)                   | 22.4                                                                          |
| parameters                       | @12:01, DTW:7.5, pH:7.37, temp:11.2, cond:832, turb:12.6, DO:0.36, redox:22.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:06, DTW:7.88, pH:7.35, temp:10.8, cond:800, turb:9.6, DO:0.34, redox:21.8**

|              |       |
|--------------|-------|
| Reading Time | 12:06 |
|--------------|-------|



|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 7.88                                                                          |
| pH                               | 7.35                                                                          |
| Conductivity (mS/cm)             | 800                                                                           |
| Turbidity (NTU)                  | 9.6                                                                           |
| Dissolved Oxygen (mg/L)          | 0.34                                                                          |
| Temperature (Degrees Celsius)    | 10.8                                                                          |
| Redox (ORP mV)                   | 21.8                                                                          |
| parameters                       | @12:06, DTW:7.88, pH:7.35, temp:10.8, cond:800, turb:9.6, DO:0.34, redox:21.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:11, DTW:7.91, pH:7.4, temp:9.8, cond:765, turb:8.95, DO:0.41, redox:26.3**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 12:11                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 7.91                                                                         |
| pH                               | 7.4                                                                          |
| Conductivity (mS/cm)             | 765                                                                          |
| Turbidity (NTU)                  | 8.95                                                                         |
| Dissolved Oxygen (mg/L)          | 0.41                                                                         |
| Temperature (Degrees Celsius)    | 9.8                                                                          |
| Redox (ORP mV)                   | 26.3                                                                         |
| parameters                       | @12:11, DTW:7.91, pH:7.4, temp:9.8, cond:765, turb:8.95, DO:0.41, redox:26.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:16, DTW:7.91, pH:7.36, temp:10, cond:820, turb:8.25, DO:0.37, redox:28**

|                                  |                                                                            |
|----------------------------------|----------------------------------------------------------------------------|
| Reading Time                     | 12:16                                                                      |
| Minutes Elapsed between readings | 5                                                                          |
| Rate (mL/min)                    | 100                                                                        |
| Depth to Water (ft)              | 7.91                                                                       |
| pH                               | 7.36                                                                       |
| Conductivity (mS/cm)             | 820                                                                        |
| Turbidity (NTU)                  | 8.25                                                                       |
| Dissolved Oxygen (mg/L)          | 0.37                                                                       |
| Temperature (Degrees Celsius)    | 10                                                                         |
| Redox (ORP mV)                   | 28                                                                         |
| parameters                       | @12:16, DTW:7.91, pH:7.36, temp:10, cond:820, turb:8.25, DO:0.37, redox:28 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:21, DTW:7.92, pH:7.35, temp:10.3, cond:816, turb:7.53, DO:0.32, redox:22.4**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:21                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 7.92                                                                           |
| pH                               | 7.35                                                                           |
| Conductivity (mS/cm)             | 816                                                                            |
| Turbidity (NTU)                  | 7.53                                                                           |
| Dissolved Oxygen (mg/L)          | 0.32                                                                           |
| Temperature (Degrees Celsius)    | 10.3                                                                           |
| Redox (ORP mV)                   | 22.4                                                                           |
| parameters                       | @12:21, DTW:7.92, pH:7.35, temp:10.3, cond:816, turb:7.53, DO:0.32, redox:22.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:26, DTW:7.97, pH:7.35, temp:10.2, cond:827, turb:6.75, DO:0.32, redox:22.8**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:26                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 7.97                                                                           |
| pH                               | 7.35                                                                           |
| Conductivity (mS/cm)             | 827                                                                            |
| Turbidity (NTU)                  | 6.75                                                                           |
| Dissolved Oxygen (mg/L)          | 0.32                                                                           |
| Temperature (Degrees Celsius)    | 10.2                                                                           |
| Redox (ORP mV)                   | 22.8                                                                           |
| parameters                       | @12:26, DTW:7.97, pH:7.35, temp:10.2, cond:827, turb:6.75, DO:0.32, redox:22.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 12:28   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 1       |
| Well Volumes Purged           | 0.5     |

### **Sample Information**

|               |       |
|---------------|-------|
| Sample Time   | 12:28 |
| Color         | Clear |
| Notable odors | None  |

### **PFAS**

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |

### **Well Information**

|               |          |
|---------------|----------|
| Well Location | MW-12-12 |
|---------------|----------|

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |
| Signature                |      |

A handwritten signature in black ink, appearing to read "Gary Schuler". The signature is written in a cursive, flowing style with some overlapping letters.

Signed 2019-12-03 17:29:48 UTC

## 2019-06-12, MW-12-13, MW-12-13

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 12:54:10 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-12 13:15:18 EDT by Christine Gregg |
| Location                                                                                          | 42.73791607, -84.57752866                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-12                                 |
| Well Identification                                                                               | MW-12-13                                   |
| Well ID                                                                                           | MW-12-13                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy Windy 70's                          |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 9.12          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 25.45         |
| Water Column                                                                                                                                                                                                                                              | 16.33         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.65          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 23            |
| Purge Start                                                                                                                                                                                                                                               | 12:30         |

### @12:30, DTW:9.13, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 12:30                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 9.13                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @12:30, DTW:9.13, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:35, DTW:9.75, pH:7.36, temp:20.8, cond:1.24, turb:19.9, DO:1.12, redox:44.6

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 9.75  |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.36  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.24                                                                            |
| Turbidity (NTU)               | 19.9                                                                            |
| Dissolved Oxygen (mg/L)       | 1.12                                                                            |
| Temperature (Degrees Celsius) | 20.8                                                                            |
| Redox (ORP mV)                | 44.6                                                                            |
| parameters                    | @12:35, DTW:9.75, pH:7.36, temp:20.8, cond:1.24, turb:19.9, DO:1.12, redox:44.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:40, DTW:9.98, pH:7.35, temp:21.2, cond:1.24, turb:16.2, DO:0.61, redox:44.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 9.98                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.35                                                                            |
| Conductivity (mS/cm)             | 1.24                                                                            |
| Turbidity (NTU)                  | 16.2                                                                            |
| Dissolved Oxygen (mg/L)          | 0.61                                                                            |
| Temperature (Degrees Celsius)    | 21.2                                                                            |
| Redox (ORP mV)                   | 44.8                                                                            |
| parameters                       | @12:40, DTW:9.98, pH:7.35, temp:21.2, cond:1.24, turb:16.2, DO:0.61, redox:44.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:45, DTW:10.21, pH:7.33, temp:20.9, cond:1.24, turb:13.3, DO:0.39, redox:39.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 10.21                                                                            |
| Milliliters Purged (total)       | 1500                                                                             |
| pH                               | 7.33                                                                             |
| Conductivity (mS/cm)             | 1.24                                                                             |
| Turbidity (NTU)                  | 13.3                                                                             |
| Dissolved Oxygen (mg/L)          | 0.39                                                                             |
| Temperature (Degrees Celsius)    | 20.9                                                                             |
| Redox (ORP mV)                   | 39.8                                                                             |
| parameters                       | @12:45, DTW:10.21, pH:7.33, temp:20.9, cond:1.24, turb:13.3, DO:0.39, redox:39.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:50, DTW:10.45, pH:7.33, temp:20.9, cond:1.24, turb:12.8, DO:0.39, redox:37.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:50 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 10.45                                                                            |
| Milliliters Purged (total)    | 2000                                                                             |
| pH                            | 7.33                                                                             |
| Conductivity (mS/cm)          | 1.24                                                                             |
| Turbidity (NTU)               | 12.8                                                                             |
| Dissolved Oxygen (mg/L)       | 0.39                                                                             |
| Temperature (Degrees Celsius) | 20.9                                                                             |
| Redox (ORP mV)                | 37.9                                                                             |
| parameters                    | @12:50, DTW:10.45, pH:7.33, temp:20.9, cond:1.24, turb:12.8, DO:0.39, redox:37.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:55, DTW:10.54, pH:7.32, temp:20.9, cond:1.24, turb:9.98, DO:0.38, redox:35.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 10.54                                                                            |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 7.32                                                                             |
| Conductivity (mS/cm)             | 1.24                                                                             |
| Turbidity (NTU)                  | 9.98                                                                             |
| Dissolved Oxygen (mg/L)          | 0.38                                                                             |
| Temperature (Degrees Celsius)    | 20.9                                                                             |
| Redox (ORP mV)                   | 35.6                                                                             |
| parameters                       | @12:55, DTW:10.54, pH:7.32, temp:20.9, cond:1.24, turb:9.98, DO:0.38, redox:35.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:00, DTW:10.71, pH:7.32, temp:20.8, cond:1.24, turb:9.23, DO:0.35, redox:32.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 10.71                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.32                                                                             |
| Conductivity (mS/cm)             | 1.24                                                                             |
| Turbidity (NTU)                  | 9.23                                                                             |
| Dissolved Oxygen (mg/L)          | 0.35                                                                             |
| Temperature (Degrees Celsius)    | 20.8                                                                             |
| Redox (ORP mV)                   | 32.1                                                                             |
| parameters                       | @13:00, DTW:10.71, pH:7.32, temp:20.8, cond:1.24, turb:9.23, DO:0.35, redox:32.1 |



Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:05, DTW:10.89, pH:7.32, temp:20.7, cond:1.24, turb:8.13, DO:0.32, redox:28.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:05                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 10.89                                                                            |
| Milliliters Purged (total)       | 3500                                                                             |
| pH                               | 7.32                                                                             |
| Conductivity (mS/cm)             | 1.24                                                                             |
| Turbidity (NTU)                  | 8.13                                                                             |
| Dissolved Oxygen (mg/L)          | 0.32                                                                             |
| Temperature (Degrees Celsius)    | 20.7                                                                             |
| Redox (ORP mV)                   | 28.7                                                                             |
| parameters                       | @13:05, DTW:10.89, pH:7.32, temp:20.7, cond:1.24, turb:8.13, DO:0.32, redox:28.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:10, DTW:11.02, pH:7.32, temp:20.7, cond:1.24, turb:7.45, DO:0.32, redox:26.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 11.02                                                                            |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 7.32                                                                             |
| Conductivity (mS/cm)             | 1.24                                                                             |
| Turbidity (NTU)                  | 7.45                                                                             |
| Dissolved Oxygen (mg/L)          | 0.32                                                                             |
| Temperature (Degrees Celsius)    | 20.7                                                                             |
| Redox (ORP mV)                   | 26.6                                                                             |
| parameters                       | @13:10, DTW:11.02, pH:7.32, temp:20.7, cond:1.24, turb:7.45, DO:0.32, redox:26.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:15, DTW:11.18, pH:7.32, temp:20.5, cond:1.24, turb:7.34, DO:0.32, redox:23.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 11.18 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.32  |
| Conductivity (mS/cm)             | 1.24  |
| Turbidity (NTU)                  | 7.34  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.32                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 20.5                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 23.9                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @13:15, DTW:11.18, pH:7.32, temp:20.5, cond:1.24, turb:7.34, DO:0.32, redox:23.9 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 13:15                                                                            |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                      |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 4500                                                                             |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.45                                                                             |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:15 |
| Color         | Clear |
| Notable odors | No    |

## Metals, Total

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | Metals, Total  |
| Container Type       | 125 mL Plastic |
| Number of Containers | 1              |
| Preservative         | HNO3           |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |                   |
|--------------------------|-------------------|
| Well Location            | East side Plant 6 |
| Condition of Well        | Good              |
| Well Locked at Arrival   | Yes               |
| Well Locked at Departure | Yes               |

Photo of Well



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Comments

Didn't meet drawdown requirements

Signature

Sull

Signed 2019-06-12 17:04:42 UTC

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## 2019-08-27, MW-12-13

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 16:42:40 UTC by Gary Schafer |
| Updated                                                                                           | 2020-03-31 18:40:49 UTC by Gary Schafer |
| Location                                                                                          | 42.5031829253235, -83.4425590374353     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-08-27                              |
| Well ID                                                                                           | MW-12-13                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Overcast temp 75                        |

### Evacuation Details

|                                                                                                                                                                                                                                                                   |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                  | Top of Casing |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                       | 12.85         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                              | 25.45         |
| Water Column                                                                                                                                                                                                                                                      | 12.6          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1\text{foot}$ ] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                      | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                            | Bladder       |
| Sample Method                                                                                                                                                                                                                                                     | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                       | 12:20         |

### @12:25, DTW:14.15, pH:7.19, temp:15.7, cond:1.04, turb:10.3, DO:0.2, redox:-6.7

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 12:25                                                                           |
| Rate (mL/min)                 | 100                                                                             |
| Depth to Water (ft)           | 14.15                                                                           |
| pH                            | 7.19                                                                            |
| Conductivity (mS/cm)          | 1.04                                                                            |
| Turbidity (NTU)               | 10.3                                                                            |
| Dissolved Oxygen (mg/L)       | 0.2                                                                             |
| Temperature (Degrees Celsius) | 15.7                                                                            |
| Redox (ORP mV)                | -6.7                                                                            |
| parameters                    | @12:25, DTW:14.15, pH:7.19, temp:15.7, cond:1.04, turb:10.3, DO:0.2, redox:-6.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:30, DTW:14.63, pH:7.17, temp:15.5, cond:1.01, turb:5.59, DO:0.22, redox:-5.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 14.63 |
| pH                               | 7.17  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.01                                                                             |
| Turbidity (NTU)               | 5.59                                                                             |
| Dissolved Oxygen (mg/L)       | 0.22                                                                             |
| Temperature (Degrees Celsius) | 15.5                                                                             |
| Redox (ORP mV)                | -5.7                                                                             |
| parameters                    | @12:30, DTW:14.63, pH:7.17, temp:15.5, cond:1.01, turb:5.59, DO:0.22, redox:-5.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:35, DTW:15.02, pH:7.19, temp:15.2, cond:0.98, turb:4.59, DO:0.22, redox:-5.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 15.02                                                                            |
| pH                               | 7.19                                                                             |
| Conductivity (mS/cm)             | 0.98                                                                             |
| Turbidity (NTU)                  | 4.59                                                                             |
| Dissolved Oxygen (mg/L)          | 0.22                                                                             |
| Temperature (Degrees Celsius)    | 15.2                                                                             |
| Redox (ORP mV)                   | -5.1                                                                             |
| parameters                       | @12:35, DTW:15.02, pH:7.19, temp:15.2, cond:0.98, turb:4.59, DO:0.22, redox:-5.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 12:40 |
|-----------|-------|

## Sample Information

|             |       |
|-------------|-------|
| Sample Time | 12:37 |
| Color       | Clear |

## Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW 12-13 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature

Gary  
Schuler

Signed 2020-03-31 18:40:48 UTC

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## 2019-12-03, MW-12-13

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-03 19:31:18 UTC by Gary Schafer |
| Updated                                                                                           | 2019-12-05 16:21:33 UTC by Gary Schafer |
| Location                                                                                          | 42.7379073109876, -84.5774690621389     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-12-03                              |
| Well ID                                                                                           | MW-12-13                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Overcast / slight breeze temp 31        |

## Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 9.5           |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 25.5          |
| Water Column                                                                                                                                                                                                                                           | 16            |
| Gallons in Well                                                                                                                                                                                                                                        | 2.6           |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 9.55          |
| Purge Start                                                                                                                                                                                                                                            | 14:33         |

## @14:35, DTW:9.78, pH:7.65, temp:10.2, cond:936, turb:15.9, DO:4.85, redox:117.7

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 14:35                                                                           |
| Rate (mL/min)                 | 100                                                                             |
| Depth to Water (ft)           | 9.78                                                                            |
| pH                            | 7.65                                                                            |
| Conductivity (mS/cm)          | 936                                                                             |
| Turbidity (NTU)               | 15.9                                                                            |
| Dissolved Oxygen (mg/L)       | 4.85                                                                            |
| Temperature (Degrees Celsius) | 10.2                                                                            |
| Redox (ORP mV)                | 117.7                                                                           |
| parameters                    | @14:35, DTW:9.78, pH:7.65, temp:10.2, cond:936, turb:15.9, DO:4.85, redox:117.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

## @14:40, DTW:9.82, pH:7.63, temp:9.7, cond:947, turb:13.4, DO:4.65, redox:94.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:40 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                           |
| Depth to Water (ft)           | 9.82                                                                          |
| pH                            | 7.63                                                                          |
| Conductivity (mS/cm)          | 947                                                                           |
| Turbidity (NTU)               | 13.4                                                                          |
| Dissolved Oxygen (mg/L)       | 4.65                                                                          |
| Temperature (Degrees Celsius) | 9.7                                                                           |
| Redox (ORP mV)                | 94.7                                                                          |
| parameters                    | @14:40, DTW:9.82, pH:7.63, temp:9.7, cond:947, turb:13.4, DO:4.65, redox:94.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:45, DTW:9.88, pH:7.45, temp:10, cond:960, turb:12, DO:2.13, redox:13.4**

|                                  |                                                                            |
|----------------------------------|----------------------------------------------------------------------------|
| Reading Time                     | 14:45                                                                      |
| Minutes Elapsed between readings | 5                                                                          |
| Rate (mL/min)                    | 100                                                                        |
| Depth to Water (ft)              | 9.88                                                                       |
| pH                               | 7.45                                                                       |
| Conductivity (mS/cm)             | 960                                                                        |
| Turbidity (NTU)                  | 12                                                                         |
| Dissolved Oxygen (mg/L)          | 2.13                                                                       |
| Temperature (Degrees Celsius)    | 10                                                                         |
| Redox (ORP mV)                   | 13.4                                                                       |
| parameters                       | @14:45, DTW:9.88, pH:7.45, temp:10, cond:960, turb:12, DO:2.13, redox:13.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:50, DTW:9.88, pH:7.43, temp:9.6, cond:966, turb:11.4, DO:2.14, redox:4.8**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 14:50                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 9.88                                                                         |
| pH                               | 7.43                                                                         |
| Conductivity (mS/cm)             | 966                                                                          |
| Turbidity (NTU)                  | 11.4                                                                         |
| Dissolved Oxygen (mg/L)          | 2.14                                                                         |
| Temperature (Degrees Celsius)    | 9.6                                                                          |
| Redox (ORP mV)                   | 4.8                                                                          |
| parameters                       | @14:50, DTW:9.88, pH:7.43, temp:9.6, cond:966, turb:11.4, DO:2.14, redox:4.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:55, DTW:9.88, pH:7.45, temp:8.9, cond:980, turb:8.93, DO:2.43, redox:-1**

|              |       |
|--------------|-------|
| Reading Time | 14:55 |
|--------------|-------|

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 100                                                                         |
| Depth to Water (ft)              | 9.88                                                                        |
| pH                               | 7.45                                                                        |
| Conductivity (mS/cm)             | 980                                                                         |
| Turbidity (NTU)                  | 8.93                                                                        |
| Dissolved Oxygen (mg/L)          | 2.43                                                                        |
| Temperature (Degrees Celsius)    | 8.9                                                                         |
| Redox (ORP mV)                   | -1                                                                          |
| parameters                       | @14:55, DTW:9.88, pH:7.45, temp:8.9, cond:980, turb:8.93, DO:2.43, redox:-1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:00, DTW:9.88, pH:7.4, temp:9.1, cond:960, turb:8, DO:2.2, redox:-6**

|                                  |                                                                        |
|----------------------------------|------------------------------------------------------------------------|
| Reading Time                     | 15:00                                                                  |
| Minutes Elapsed between readings | 5                                                                      |
| Rate (mL/min)                    | 100                                                                    |
| Depth to Water (ft)              | 9.88                                                                   |
| pH                               | 7.4                                                                    |
| Conductivity (mS/cm)             | 960                                                                    |
| Turbidity (NTU)                  | 8                                                                      |
| Dissolved Oxygen (mg/L)          | 2.2                                                                    |
| Temperature (Degrees Celsius)    | 9.1                                                                    |
| Redox (ORP mV)                   | -6                                                                     |
| parameters                       | @15:00, DTW:9.88, pH:7.4, temp:9.1, cond:960, turb:8, DO:2.2, redox:-6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:05, DTW:9.88, pH:7.4, temp:9.6, cond:943, turb:8.28, DO:2.22, redox:-7.5**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 15:05                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 9.88                                                                         |
| pH                               | 7.4                                                                          |
| Conductivity (mS/cm)             | 943                                                                          |
| Turbidity (NTU)                  | 8.28                                                                         |
| Dissolved Oxygen (mg/L)          | 2.22                                                                         |
| Temperature (Degrees Celsius)    | 9.6                                                                          |
| Redox (ORP mV)                   | -7.5                                                                         |
| parameters                       | @15:05, DTW:9.88, pH:7.4, temp:9.6, cond:943, turb:8.28, DO:2.22, redox:-7.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:10, DTW:9.88, pH:7.45, temp:10, cond:943, turb:7.74, DO:2.34, redox:-11.2**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 15:10                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 9.88                                                                          |
| pH                               | 7.45                                                                          |
| Conductivity (mS/cm)             | 943                                                                           |
| Turbidity (NTU)                  | 7.74                                                                          |
| Dissolved Oxygen (mg/L)          | 2.34                                                                          |
| Temperature (Degrees Celsius)    | 10                                                                            |
| Redox (ORP mV)                   | -11.2                                                                         |
| parameters                       | @15:10, DTW:9.88, pH:7.45, temp:10, cond:943, turb:7.74, DO:2.34, redox:-11.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:15, DTW:9.95, pH:7.41, temp:10, cond:946, turb:6.68, DO:2.34, redox:-16.3**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 15:15                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 9.95                                                                          |
| pH                               | 7.41                                                                          |
| Conductivity (mS/cm)             | 946                                                                           |
| Turbidity (NTU)                  | 6.68                                                                          |
| Dissolved Oxygen (mg/L)          | 2.34                                                                          |
| Temperature (Degrees Celsius)    | 10                                                                            |
| Redox (ORP mV)                   | -16.3                                                                         |
| parameters                       | @15:15, DTW:9.95, pH:7.41, temp:10, cond:946, turb:6.68, DO:2.34, redox:-16.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 15:17   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 1       |
| Well Volumes Purged           | 0.38    |

### **Sample Information**

|               |       |
|---------------|-------|
| Sample Time   | 15:16 |
| Color         | Clear |
| Notable odors | None  |

### **Well Information**

|                          |          |
|--------------------------|----------|
| Well Location            | MW-12-13 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature

Gary  
Schuler

Signed 2019-12-03 20:22:08 UTC

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## 2019-06-10, MW-12-16, MW-12-16

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 15:22:34 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-10 15:41:24 EDT by Christine Gregg |
| Location                                                                                          | 42.73374653, -84.58112014                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-10                                 |
| Well Identification                                                                               | MW-12-16                                   |
| Well ID                                                                                           | MW-12-16                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | MSMSD                                      |
| Weather                                                                                           | Mostly Cloudy Windy 60's                   |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 22.42         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 32.2          |
| Water Column                                                                                                                                                                                                                                           | 9.78          |
| Gallons in Well                                                                                                                                                                                                                                        | 1.59          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 30            |
| Purge Start                                                                                                                                                                                                                                            | 15:30         |

### @15:30, DTW:22.42, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 15:30                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 22.42                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @15:30, DTW:22.42, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:35, DTW:22.44, pH:6.91, temp:13.8, cond:1.45, turb:54.8, DO:0.85, redox:46.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 22.44 |
| Milliliters Purged (total)       | 500   |



|                               |      |
|-------------------------------|------|
| pH                            | 6.91 |
| Conductivity (mS/cm)          | 1.45 |
| Turbidity (NTU)               | 54.8 |
| Dissolved Oxygen (mg/L)       | 0.85 |
| Temperature (Degrees Celsius) | 13.8 |
| Redox (ORP mV)                | 46.3 |

parameters @15:35, DTW:22.44, pH:6.91, temp:13.8, cond:1.45, turb:54.8, DO:0.85, redox:46.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:40, DTW:22.44, pH:6.91, temp:13.4, cond:1.44, turb:36.4, DO:0.42, redox:30.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 22.44 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 6.91  |
| Conductivity (mS/cm)             | 1.44  |
| Turbidity (NTU)                  | 36.4  |
| Dissolved Oxygen (mg/L)          | 0.42  |
| Temperature (Degrees Celsius)    | 13.4  |
| Redox (ORP mV)                   | 30.8  |

parameters @15:40, DTW:22.44, pH:6.91, temp:13.4, cond:1.44, turb:36.4, DO:0.42, redox:30.8

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:45, DTW:22.44, pH:6.91, temp:13.5, cond:1.44, turb:19.7, DO:0.3, redox:25.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 22.44 |
| Milliliters Purged (total)       | 1500  |
| pH                               | 6.91  |
| Conductivity (mS/cm)             | 1.44  |
| Turbidity (NTU)                  | 19.7  |
| Dissolved Oxygen (mg/L)          | 0.3   |
| Temperature (Degrees Celsius)    | 13.5  |
| Redox (ORP mV)                   | 25.5  |

parameters @15:45, DTW:22.44, pH:6.91, temp:13.5, cond:1.44, turb:19.7, DO:0.3, redox:25.5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:50, DTW:22.44, pH:6.91, temp:13.5, cond:1.43, turb:16.3, DO:0.27, redox:10.9**

|              |       |
|--------------|-------|
| Reading Time | 15:50 |
|--------------|-------|

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 22.44                                                                            |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 6.91                                                                             |
| Conductivity (mS/cm)             | 1.43                                                                             |
| Turbidity (NTU)                  | 16.3                                                                             |
| Dissolved Oxygen (mg/L)          | 0.27                                                                             |
| Temperature (Degrees Celsius)    | 13.5                                                                             |
| Redox (ORP mV)                   | 10.9                                                                             |
| parameters                       | @15:50, DTW:22.44, pH:6.91, temp:13.5, cond:1.43, turb:16.3, DO:0.27, redox:10.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:55, DTW:22.44, pH:6.91, temp:13.4, cond:1.43, turb:9.97, DO:0.26, redox:4.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:55                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 22.44                                                                           |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 6.91                                                                            |
| Conductivity (mS/cm)             | 1.43                                                                            |
| Turbidity (NTU)                  | 9.97                                                                            |
| Dissolved Oxygen (mg/L)          | 0.26                                                                            |
| Temperature (Degrees Celsius)    | 13.4                                                                            |
| Redox (ORP mV)                   | 4.5                                                                             |
| parameters                       | @15:55, DTW:22.44, pH:6.91, temp:13.4, cond:1.43, turb:9.97, DO:0.26, redox:4.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:00, DTW:22.44, pH:6.91, temp:13.4, cond:1.43, turb:9.45, DO:0.26, redox:4.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 16:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 22.44                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 6.91                                                                            |
| Conductivity (mS/cm)             | 1.43                                                                            |
| Turbidity (NTU)                  | 9.45                                                                            |
| Dissolved Oxygen (mg/L)          | 0.26                                                                            |
| Temperature (Degrees Celsius)    | 13.4                                                                            |
| Redox (ORP mV)                   | 4.2                                                                             |
| parameters                       | @16:00, DTW:22.44, pH:6.91, temp:13.4, cond:1.43, turb:9.45, DO:0.26, redox:4.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@16:05, DTW:22.44, pH:6.9, temp:13.3, cond:1.43, turb:9.76, DO:0.27, redox:2.9**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 16:05                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 22.44                                                                          |
| Milliliters Purged (total)       | 3500                                                                           |
| pH                               | 6.9                                                                            |
| Conductivity (mS/cm)             | 1.43                                                                           |
| Turbidity (NTU)                  | 9.76                                                                           |
| Dissolved Oxygen (mg/L)          | 0.27                                                                           |
| Temperature (Degrees Celsius)    | 13.3                                                                           |
| Redox (ORP mV)                   | 2.9                                                                            |
| parameters                       | @16:05, DTW:22.44, pH:6.9, temp:13.3, cond:1.43, turb:9.76, DO:0.27, redox:2.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 16:05       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 3500        |
| Well Volumes Purged           | 0.58        |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 16:05 |
| Color         | Clear |
| Notable odors | No    |

### Metals, Total

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | Metals, Total  |
| Container Type       | 125 mL Plastic |
| Number of Containers | 3              |
| Preservative         | HNO3           |

### Well Information

|                          |                            |
|--------------------------|----------------------------|
| Well Location            | Off site, south of Plant 6 |
| Condition of Well        | Good                       |
| Well Locked at Arrival   | No                         |
| Well Locked at Departure | No                         |

Photo of Well



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Signature

Bull

Signed 2019-06-10 19:25:29 UTC

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## 2019-12-05, MW-12-18

|                                                                                                   |                                           |
|---------------------------------------------------------------------------------------------------|-------------------------------------------|
| Created                                                                                           | 2019-12-05 14:04:35 UTC by Melissa Weaver |
| Updated                                                                                           | 2019-12-05 17:14:05 UTC by Melissa Weaver |
| Location                                                                                          | 42.7368345112006, -84.5873042196823       |
| Project Number                                                                                    | 30006870                                  |
| Project Name / Location                                                                           | RACER Lansing, MI                         |
| Sampler Name                                                                                      | Melissa Weaver                            |
| Date                                                                                              | 2019-12-05                                |
| Well ID                                                                                           | MW-12-18                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                       |
| Weather                                                                                           | 32 cloudy                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 26.94         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 34.75         |
| Water Column                                                                                                                                                                                                                                           | 7.81          |
| Gallons in Well                                                                                                                                                                                                                                        | 1.27          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 33            |
| Purge Start                                                                                                                                                                                                                                            | 09:06         |

### @09:15, DTW:25.89, pH:7.03, temp:12, cond:2.05, turb:63.6, DO:1.21, redox:86

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Reading Time                  | 09:15                                                                        |
| Rate (mL/min)                 | 200                                                                          |
| Depth to Water (ft)           | 25.89                                                                        |
| pH                            | 7.03                                                                         |
| Conductivity (mS/cm)          | 2.05                                                                         |
| Turbidity (NTU)               | 63.6                                                                         |
| Dissolved Oxygen (mg/L)       | 1.21                                                                         |
| Temperature (Degrees Celsius) | 12                                                                           |
| Redox (ORP mV)                | 86                                                                           |
| Reading Comments              | Turbidity started out high so I wanted 9 mins before recording parameters.   |
| parameters                    | @09:15, DTW:25.89, pH:7.03, temp:12, cond:2.05, turb:63.6, DO:1.21, redox:86 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:20, DTW:25.89, pH:7.03, temp:12.1, cond:2.07, turb:47.2, DO:1.4, redox:48.7

|              |       |
|--------------|-------|
| Reading Time | 09:20 |
|--------------|-------|

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 25.89                                                                           |
| pH                               | 7.03                                                                            |
| Conductivity (mS/cm)             | 2.07                                                                            |
| Turbidity (NTU)                  | 47.2                                                                            |
| Dissolved Oxygen (mg/L)          | 1.4                                                                             |
| Temperature (Degrees Celsius)    | 12.1                                                                            |
| Redox (ORP mV)                   | 48.7                                                                            |
| parameters                       | @09:20, DTW:25.89, pH:7.03, temp:12.1, cond:2.07, turb:47.2, DO:1.4, redox:48.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:25, DTW:26.78, pH:7.02, temp:11.9, cond:2.09, turb:31.4, DO:1.44, redox:29.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 26.78                                                                            |
| pH                               | 7.02                                                                             |
| Conductivity (mS/cm)             | 2.09                                                                             |
| Turbidity (NTU)                  | 31.4                                                                             |
| Dissolved Oxygen (mg/L)          | 1.44                                                                             |
| Temperature (Degrees Celsius)    | 11.9                                                                             |
| Redox (ORP mV)                   | 29.5                                                                             |
| parameters                       | @09:25, DTW:26.78, pH:7.02, temp:11.9, cond:2.09, turb:31.4, DO:1.44, redox:29.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:30, DTW:26.98, pH:7.02, temp:12, cond:2.14, turb:17, DO:1.35, redox:16.2**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 09:30                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 26.98                                                                        |
| pH                               | 7.02                                                                         |
| Conductivity (mS/cm)             | 2.14                                                                         |
| Turbidity (NTU)                  | 17                                                                           |
| Dissolved Oxygen (mg/L)          | 1.35                                                                         |
| Temperature (Degrees Celsius)    | 12                                                                           |
| Redox (ORP mV)                   | 16.2                                                                         |
| parameters                       | @09:30, DTW:26.98, pH:7.02, temp:12, cond:2.14, turb:17, DO:1.35, redox:16.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:35, DTW:26.95, pH:7.01, temp:11.7, cond:2.21, turb:7.52, DO:4.18, redox:9.4**



|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 26.95                                                                           |
| pH                               | 7.01                                                                            |
| Conductivity (mS/cm)             | 2.21                                                                            |
| Turbidity (NTU)                  | 7.52                                                                            |
| Dissolved Oxygen (mg/L)          | 4.18                                                                            |
| Temperature (Degrees Celsius)    | 11.7                                                                            |
| Redox (ORP mV)                   | 9.4                                                                             |
| parameters                       | @09:35, DTW:26.95, pH:7.01, temp:11.7, cond:2.21, turb:7.52, DO:4.18, redox:9.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:40, DTW:26.95, pH:7, temp:11.6, cond:2.19, turb:4.42, DO:6.2, redox:4**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 26.95                                                                          |
| pH                               | 7                                                                              |
| Conductivity (mS/cm)             | 2.19                                                                           |
| Turbidity (NTU)                  | 4.42                                                                           |
| Dissolved Oxygen (mg/L)          | 6.2                                                                            |
| Temperature (Degrees Celsius)    | 11.6                                                                           |
| Redox (ORP mV)                   | 4                                                                              |
| Reading Comments                 | At 9:44 flow started to decrease. I shook the tube and it continued as before. |
| parameters                       | @09:40, DTW:26.95, pH:7, temp:11.6, cond:2.19, turb:4.42, DO:6.2, redox:4      |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:45, DTW:27.06, pH:6.98, temp:12, cond:2.22, turb:9.47, DO:1.7, redox:5.1**

|                                  |                                                                                                                                                                                                                        |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                                                                                                                                                                  |
| Minutes Elapsed between readings | 5                                                                                                                                                                                                                      |
| Rate (mL/min)                    | 200                                                                                                                                                                                                                    |
| Depth to Water (ft)              | 27.06                                                                                                                                                                                                                  |
| pH                               | 6.98                                                                                                                                                                                                                   |
| Conductivity (mS/cm)             | 2.22                                                                                                                                                                                                                   |
| Turbidity (NTU)                  | 9.47                                                                                                                                                                                                                   |
| Dissolved Oxygen (mg/L)          | 1.7                                                                                                                                                                                                                    |
| Temperature (Degrees Celsius)    | 12                                                                                                                                                                                                                     |
| Redox (ORP mV)                   | 5.1                                                                                                                                                                                                                    |
| Reading Comments                 | Purging unexpectedly stopped. While I was trying to investigate the tube fell down the well. I started backup with a new line & when I pulled up the new tube the old one came up also. The original tube got clogged. |

parameters

@09:45, DTW:27.06, pH:6.98, temp:12, cond:2.22, turb:9.47, DO:1.7, redox:5.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:10, DTW:26.6, pH:6.98, temp:12.3, cond:2.47, turb:24.4, DO:1.7, redox:-8.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:10 |
| Minutes Elapsed between readings | 25    |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 26.6  |
| pH                               | 6.98  |
| Conductivity (mS/cm)             | 2.47  |
| Turbidity (NTU)                  | 24.4  |
| Dissolved Oxygen (mg/L)          | 1.7   |
| Temperature (Degrees Celsius)    | 12.3  |
| Redox (ORP mV)                   | -8.1  |

parameters

@10:10, DTW:26.6, pH:6.98, temp:12.3, cond:2.47, turb:24.4, DO:1.7, redox:-8.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:05, DTW:26.6, pH:9.98, temp:12.3, cond:2.5, turb:32, DO:1.69, redox:-8

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:05 |
| Minutes Elapsed between readings | 1435  |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 26.6  |
| pH                               | 9.98  |
| Conductivity (mS/cm)             | 2.5   |
| Turbidity (NTU)                  | 32    |
| Dissolved Oxygen (mg/L)          | 1.69  |
| Temperature (Degrees Celsius)    | 12.3  |
| Redox (ORP mV)                   | -8    |

parameters

@10:05, DTW:26.6, pH:9.98, temp:12.3, cond:2.5, turb:32, DO:1.69, redox:-8

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:20, DTW:26.89, pH:6.98, temp:12, cond:2.53, turb:32, DO:1.7, redox:-10

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:20 |
| Minutes Elapsed between readings | 15    |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 26.89 |
| pH                               | 6.98  |
| Conductivity (mS/cm)             | 2.53  |
| Turbidity (NTU)                  | 32    |
| Dissolved Oxygen (mg/L)          | 1.7   |
| Temperature (Degrees Celsius)    | 12    |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -10                                                                        |
| parameters                                                                                                                                                                                                                                                                                                                                       | @10:20, DTW:26.89, pH:6.98, temp:12, cond:2.53, turb:32, DO:1.7, redox:-10 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                            |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 10:20                                                                      |

### Sample Information

|               |        |
|---------------|--------|
| Sample Time   | 10:20  |
| Color         | Turbid |
| Notable odors | None   |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |                                                                                                                                                        |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Well Location            | Plant 2                                                                                                                                                |
| Condition of Well        | Good                                                                                                                                                   |
| Well Locked at Arrival   | Yes                                                                                                                                                    |
| Well Locked at Departure | Yes                                                                                                                                                    |
| Comments                 | Purging stopped at 9:45. There was a clog in the tube. Purging continued at 10:04. 3 parameters were taken at 10:10, 10:15, and 10:20 before sampling. |

Signature



Signed 2019-12-05 14:07:27 UTC

## 2019-06-05, MW-12-21, MW-12-21

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 14:28:40 EDT by Gary Schafer    |
| Updated                                                                                           | 2019-06-05 15:23:44 EDT by Christine Gregg |
| Location                                                                                          | 42.74230219, -84.58853217                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Gary Schafer                               |
| Date                                                                                              | 2019-06-05                                 |
| Well Identification                                                                               | MW-12-21                                   |
| Well ID                                                                                           | MW-12-21                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | Dup 07                                     |
| Weather                                                                                           | Overcast 79                                |

### Evacuation Details

|                                                                                                                                                                                                                                                                     |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                    | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                            | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                         | 63.56         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1 \text{ foot}$ ] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                        | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                              | Bladder       |
| Sample Method                                                                                                                                                                                                                                                       | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                         | 14:11         |

### @14:25, DTW:68.05, pH:7.68, temp:21.3, cond:1.4, turb:283, DO:8.2, redox:190.9

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 14:25                                                                          |
| Depth to Water (ft)           | 68.05                                                                          |
| pH                            | 7.68                                                                           |
| Conductivity (mS/cm)          | 1.4                                                                            |
| Turbidity (NTU)               | 283                                                                            |
| Dissolved Oxygen (mg/L)       | 8.2                                                                            |
| Temperature (Degrees Celsius) | 21.3                                                                           |
| Redox (ORP mV)                | 190.9                                                                          |
| parameters                    | @14:25, DTW:68.05, pH:7.68, temp:21.3, cond:1.4, turb:283, DO:8.2, redox:190.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:30, DTW:68.05, pH:7.66, temp:21.5, cond:1.38, turb:266, DO:8.06, redox:190.4

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:30 |
| Minutes Elapsed between readings | 5     |
| Depth to Water (ft)              | 68.05 |
| pH                               | 7.66  |
| Conductivity (mS/cm)             | 1.38  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Turbidity (NTU)               | 266                                                                              |
| Dissolved Oxygen (mg/L)       | 8.06                                                                             |
| Temperature (Degrees Celsius) | 21.5                                                                             |
| Redox (ORP mV)                | 190.4                                                                            |
| parameters                    | @14:30, DTW:68.05, pH:7.66, temp:21.5, cond:1.38, turb:266, DO:8.06, redox:190.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:36, DTW:68.05, pH:7.64, temp:21.3, cond:1.38, turb:278, DO:8.33, redox:190.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:36                                                                            |
| Minutes Elapsed between readings | 6                                                                                |
| Depth to Water (ft)              | 68.05                                                                            |
| pH                               | 7.64                                                                             |
| Conductivity (mS/cm)             | 1.38                                                                             |
| Turbidity (NTU)                  | 278                                                                              |
| Dissolved Oxygen (mg/L)          | 8.33                                                                             |
| Temperature (Degrees Celsius)    | 21.3                                                                             |
| Redox (ORP mV)                   | 190.1                                                                            |
| parameters                       | @14:36, DTW:68.05, pH:7.64, temp:21.3, cond:1.38, turb:278, DO:8.33, redox:190.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:41, DTW:68.05, pH:7.63, temp:21.8, cond:1.38, turb:251, DO:7.99, redox:189**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:41                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Depth to Water (ft)              | 68.05                                                                          |
| pH                               | 7.63                                                                           |
| Conductivity (mS/cm)             | 1.38                                                                           |
| Turbidity (NTU)                  | 251                                                                            |
| Dissolved Oxygen (mg/L)          | 7.99                                                                           |
| Temperature (Degrees Celsius)    | 21.8                                                                           |
| Redox (ORP mV)                   | 189                                                                            |
| parameters                       | @14:41, DTW:68.05, pH:7.63, temp:21.8, cond:1.38, turb:251, DO:7.99, redox:189 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:46, DTW:68.05, pH:7.62, temp:21.6, cond:1.38, turb:235, DO:7.98, redox:188.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:46 |
| Minutes Elapsed between readings | 5     |
| Depth to Water (ft)              | 68.05 |
| pH                               | 7.62  |
| Conductivity (mS/cm)             | 1.38  |
| Turbidity (NTU)                  | 235   |
| Dissolved Oxygen (mg/L)          | 7.98  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Temperature (Degrees Celsius) | 21.6                                                                             |
| Redox (ORP mV)                | 188.2                                                                            |
| parameters                    | @14:46, DTW:68.05, pH:7.62, temp:21.6, cond:1.38, turb:235, DO:7.98, redox:188.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:51, DTW:68.05, pH:7.59, temp:24.7, cond:1.38, turb:233, DO:7.11, redox:187.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:51                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Depth to Water (ft)              | 68.05                                                                            |
| pH                               | 7.59                                                                             |
| Conductivity (mS/cm)             | 1.38                                                                             |
| Turbidity (NTU)                  | 233                                                                              |
| Dissolved Oxygen (mg/L)          | 7.11                                                                             |
| Temperature (Degrees Celsius)    | 24.7                                                                             |
| Redox (ORP mV)                   | 187.7                                                                            |
| parameters                       | @14:51, DTW:68.05, pH:7.59, temp:24.7, cond:1.38, turb:233, DO:7.11, redox:187.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:56, DTW:68.05, pH:7.57, temp:23.1, cond:0.38, turb:223, DO:7.66, redox:89**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:56                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Depth to Water (ft)              | 68.05                                                                         |
| pH                               | 7.57                                                                          |
| Conductivity (mS/cm)             | 0.38                                                                          |
| Turbidity (NTU)                  | 223                                                                           |
| Dissolved Oxygen (mg/L)          | 7.66                                                                          |
| Temperature (Degrees Celsius)    | 23.1                                                                          |
| Redox (ORP mV)                   | 89                                                                            |
| parameters                       | @14:56, DTW:68.05, pH:7.57, temp:23.1, cond:0.38, turb:223, DO:7.66, redox:89 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:01, DTW:68.05, pH:7.57, temp:22.9, cond:1.37, turb:323, DO:7.29, redox:186.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:01 |
| Minutes Elapsed between readings | 5     |
| Depth to Water (ft)              | 68.05 |
| pH                               | 7.57  |
| Conductivity (mS/cm)             | 1.37  |
| Turbidity (NTU)                  | 323   |
| Dissolved Oxygen (mg/L)          | 7.29  |
| Temperature (Degrees Celsius)    | 22.9  |
| Redox (ORP mV)                   | 186.7 |



parameters

@15:01, DTW:68.05, pH:7.57, temp:22.9, cond:1.37, turb:323, DO:7.29, redox:186.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:06, DTW:70.55, pH:7.54, temp:22.9, cond:1.37, turb:299, DO:7.17, redox:185**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:06 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 70.55 |
| pH                               | 7.54  |
| Conductivity (mS/cm)             | 1.37  |
| Turbidity (NTU)                  | 299   |
| Dissolved Oxygen (mg/L)          | 7.17  |
| Temperature (Degrees Celsius)    | 22.9  |
| Redox (ORP mV)                   | 185   |

parameters

@15:06, DTW:70.55, pH:7.54, temp:22.9, cond:1.37, turb:299, DO:7.17, redox:185

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:11, DTW:70.55, pH:7.5, temp:22.5, cond:1.38, turb:266, DO:7.23, redox:178.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:11 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 70.55 |
| pH                               | 7.5   |
| Conductivity (mS/cm)             | 1.38  |
| Turbidity (NTU)                  | 266   |
| Dissolved Oxygen (mg/L)          | 7.23  |
| Temperature (Degrees Celsius)    | 22.5  |
| Redox (ORP mV)                   | 178.3 |

parameters

@15:11, DTW:70.55, pH:7.5, temp:22.5, cond:1.38, turb:266, DO:7.23, redox:178.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:16, DTW:71.45, pH:7.45, temp:22.3, cond:1.37, turb:276, DO:7.04, redox:159.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:16 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 71.45 |
| pH                               | 7.45  |
| Conductivity (mS/cm)             | 1.37  |
| Turbidity (NTU)                  | 276   |
| Dissolved Oxygen (mg/L)          | 7.04  |
| Temperature (Degrees Celsius)    | 22.3  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 159.4                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @15:16, DTW:71.45, pH:7.45, temp:22.3, cond:1.37, turb:276, DO:7.04, redox:159.4 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |

### @15:21, DTW:71.45, pH:7.41, temp:22.7, cond:1.36, turb:265, DO:6.79, redox:135.8

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 15:21                                                                            |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                                |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 150                                                                              |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 71.45                                                                            |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.41                                                                             |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1.36                                                                             |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 265                                                                              |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 6.79                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 22.7                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 135.8                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @15:21, DTW:71.45, pH:7.41, temp:22.7, cond:1.36, turb:265, DO:6.79, redox:135.8 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 15:22                                                                            |

### Sample Information

|               |        |
|---------------|--------|
| Sample Time   | 15:22  |
| Color         | Cloudy |
| Notable odors | None   |

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW-12-21 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature

Henry Adams

Signed 2019-06-05 19:23:42 UTC

---

## 2019-12-06, MW-12-21

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-06 14:52:57 UTC by Heather Woodrum |
| Updated                                                                                           | 2019-12-06 15:42:53 UTC by Heather Woodrum |
| Location                                                                                          | 42.7423803974341, -84.5885353536201        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Heather Woodrum                            |
| Date                                                                                              | 2019-12-06                                 |
| Well ID                                                                                           | MW-12-21                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | MS/MSD                                     |
| Weather                                                                                           | Cold, windy                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 63.1          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 75            |
| Water Column                                                                                                                                                                                                                                              | 11.9          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.93          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 72            |
| Purge Start                                                                                                                                                                                                                                               | 10:10         |

### @10:15, DTW:63.25, pH:10.9, temp:10.8, cond:1.41, turb:3.14, DO:0.62, redox:13.1

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 10:15                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 63.25                                                                            |
| pH                            | 10.9                                                                             |
| Conductivity (mS/cm)          | 1.41                                                                             |
| Turbidity (NTU)               | 3.14                                                                             |
| Dissolved Oxygen (mg/L)       | 0.62                                                                             |
| Temperature (Degrees Celsius) | 10.8                                                                             |
| Redox (ORP mV)                | 13.1                                                                             |
| parameters                    | @10:15, DTW:63.25, pH:10.9, temp:10.8, cond:1.41, turb:3.14, DO:0.62, redox:13.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:20, DTW:63.25, pH:7, temp:10.9, cond:1.41, turb:2.94, DO:0.66, redox:4.9

|              |       |
|--------------|-------|
| Reading Time | 10:20 |
|--------------|-------|

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 63.25                                                                        |
| pH                               | 7                                                                            |
| Conductivity (mS/cm)             | 1.41                                                                         |
| Turbidity (NTU)                  | 2.94                                                                         |
| Dissolved Oxygen (mg/L)          | 0.66                                                                         |
| Temperature (Degrees Celsius)    | 10.9                                                                         |
| Redox (ORP mV)                   | 4.9                                                                          |
| parameters                       | @10:20, DTW:63.25, pH:7, temp:10.9, cond:1.41, turb:2.94, DO:0.66, redox:4.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:25, DTW:63.25, pH:7.02, temp:11.3, cond:1.4, turb:3.21, DO:0.62, redox:0.9**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 10:25                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 63.25                                                                          |
| pH                               | 7.02                                                                           |
| Conductivity (mS/cm)             | 1.4                                                                            |
| Turbidity (NTU)                  | 3.21                                                                           |
| Dissolved Oxygen (mg/L)          | 0.62                                                                           |
| Temperature (Degrees Celsius)    | 11.3                                                                           |
| Redox (ORP mV)                   | 0.9                                                                            |
| parameters                       | @10:25, DTW:63.25, pH:7.02, temp:11.3, cond:1.4, turb:3.21, DO:0.62, redox:0.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:30, DTW:63.25, pH:7.05, temp:11.1, cond:1.39, turb:2.99, DO:0.6, redox:-20.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 63.25                                                                            |
| pH                               | 7.05                                                                             |
| Conductivity (mS/cm)             | 1.39                                                                             |
| Turbidity (NTU)                  | 2.99                                                                             |
| Dissolved Oxygen (mg/L)          | 0.6                                                                              |
| Temperature (Degrees Celsius)    | 11.1                                                                             |
| Redox (ORP mV)                   | -20.5                                                                            |
| parameters                       | @10:30, DTW:63.25, pH:7.05, temp:11.1, cond:1.39, turb:2.99, DO:0.6, redox:-20.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:35, DTW:63.25, pH:7.05, temp:10.6, cond:1.4, turb:3.13, DO:0.58, redox:-35.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 63.25                                                                            |
| pH                               | 7.05                                                                             |
| Conductivity (mS/cm)             | 1.4                                                                              |
| Turbidity (NTU)                  | 3.13                                                                             |
| Dissolved Oxygen (mg/L)          | 0.58                                                                             |
| Temperature (Degrees Celsius)    | 10.6                                                                             |
| Redox (ORP mV)                   | -35.5                                                                            |
| parameters                       | @10:35, DTW:63.25, pH:7.05, temp:10.6, cond:1.4, turb:3.13, DO:0.58, redox:-35.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:40, DTW:63.25, pH:7.06, temp:10.6, cond:1.4, turb:3.41, DO:0.58, redox:-37.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 63.25                                                                            |
| pH                               | 7.06                                                                             |
| Conductivity (mS/cm)             | 1.4                                                                              |
| Turbidity (NTU)                  | 3.41                                                                             |
| Dissolved Oxygen (mg/L)          | 0.58                                                                             |
| Temperature (Degrees Celsius)    | 10.6                                                                             |
| Redox (ORP mV)                   | -37.7                                                                            |
| parameters                       | @10:40, DTW:63.25, pH:7.06, temp:10.6, cond:1.4, turb:3.41, DO:0.58, redox:-37.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:45, DTW:63.25, pH:7.05, temp:10.8, cond:1.4, turb:3.02, DO:0.57, redox:-39.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 63.25                                                                            |
| pH                               | 7.05                                                                             |
| Conductivity (mS/cm)             | 1.4                                                                              |
| Turbidity (NTU)                  | 3.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.57                                                                             |
| Temperature (Degrees Celsius)    | 10.8                                                                             |
| Redox (ORP mV)                   | -39.7                                                                            |
| parameters                       | @10:45, DTW:63.25, pH:7.05, temp:10.8, cond:1.4, turb:3.02, DO:0.57, redox:-39.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit



|           |       |
|-----------|-------|
| Purge End | 10:45 |
|-----------|-------|

---

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:50 |
| Color         | Clear |
| Notable odors | None  |

---

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

---

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of stylized, overlapping loops and a trailing flourish.

Signed 2019-12-06 14:54:47 UTC

## 2019-06-06, MW-13-22, MW-13-22

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 09:01:49 EDT by Gary Schafer    |
| Updated                                                                                           | 2019-06-06 09:28:11 EDT by Christine Gregg |
| Location                                                                                          | 42.74234591, -84.58864046                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Gary Schafer                               |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-13-22                                   |
| Well ID                                                                                           | MW-13-22                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Overcast temp 61                           |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 66.28         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 66.38         |
| Purge Start                                                                                                                                                                                                                                                  | 08:59         |

### @09:00, DTW:66.28, pH:6.8, temp:14.5, cond:2.01, turb:28.3, DO:0.78, redox:-21

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 09:00                                                                          |
| Rate (mL/min)                 | 150                                                                            |
| Depth to Water (ft)           | 66.28                                                                          |
| pH                            | 6.8                                                                            |
| Conductivity (mS/cm)          | 2.01                                                                           |
| Turbidity (NTU)               | 28.3                                                                           |
| Dissolved Oxygen (mg/L)       | 0.78                                                                           |
| Temperature (Degrees Celsius) | 14.5                                                                           |
| Redox (ORP mV)                | -21                                                                            |
| parameters                    | @09:00, DTW:66.28, pH:6.8, temp:14.5, cond:2.01, turb:28.3, DO:0.78, redox:-21 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:05, DTW:66.28, pH:6.81, temp:14.5, cond:2.01, turb:12.5, DO:0.7, redox:-22.4

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 66.28 |

|                               |       |
|-------------------------------|-------|
| pH                            | 6.81  |
| Conductivity (mS/cm)          | 2.01  |
| Turbidity (NTU)               | 12.5  |
| Dissolved Oxygen (mg/L)       | 0.7   |
| Temperature (Degrees Celsius) | 14.5  |
| Redox (ORP mV)                | -22.4 |

parameters @09:05, DTW:66.28, pH:6.81, temp:14.5, cond:2.01, turb:12.5, DO:0.7, redox:-22.4

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:10, DTW:66.28, pH:6.81, temp:14.5, cond:2.01, turb:7.32, DO:0.68, redox:-23.6

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 66.28 |
| pH                               | 6.81  |
| Conductivity (mS/cm)             | 2.01  |
| Turbidity (NTU)                  | 7.32  |
| Dissolved Oxygen (mg/L)          | 0.68  |
| Temperature (Degrees Celsius)    | 14.5  |
| Redox (ORP mV)                   | -23.6 |

parameters @09:10, DTW:66.28, pH:6.81, temp:14.5, cond:2.01, turb:7.32, DO:0.68, redox:-23.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:15, DTW:66.28, pH:6.81, temp:14.6, cond:2.01, turb:4.02, DO:0.62, redox:-23.8

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 66.28 |
| pH                               | 6.81  |
| Conductivity (mS/cm)             | 2.01  |
| Turbidity (NTU)                  | 4.02  |
| Dissolved Oxygen (mg/L)          | 0.62  |
| Temperature (Degrees Celsius)    | 14.6  |
| Redox (ORP mV)                   | -23.8 |

parameters @09:15, DTW:66.28, pH:6.81, temp:14.6, cond:2.01, turb:4.02, DO:0.62, redox:-23.8

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:20, DTW:66.28, pH:6.81, temp:14.8, cond:2.01, turb:4.63, DO:0.62, redox:-24.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 66.28                                                                             |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.81                                                                              |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 2.01                                                                              |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 4.63                                                                              |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.62                                                                              |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 14.8                                                                              |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -24.1                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @09:20, DTW:66.28, pH:6.81, temp:14.8, cond:2.01, turb:4.63, DO:0.62, redox:-24.1 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                   |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 21:21                                                                             |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Gallons                                                                           |
| Total Gallons Purged                                                                                                                                                                                                                                                                                                                             | 2.5                                                                               |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 09:22 |
| Color         | Clear |
| Notable odors | None  |

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW-13-22 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |
| Signature                |          |



Signed 2019-06-06 13:28:09 UTC

## 2019-08-27, MW-13-22, MW-13-22

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-08-27 10:33:40 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-08-27 11:40:33 EDT by Christine Gregg |
| Location                                                                                          | 42.7423379, -84.58861825                   |
| Project Number                                                                                    | 12345678.9876                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-08-27                                 |
| Well Identification                                                                               | MW-13-22                                   |
| Well ID                                                                                           | MW-13-22                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy, 60's-70's                          |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 65.19         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 96.2          |
| Water Column                                                                                                                                                                                                                                              | 31.01         |
| Gallons in Well                                                                                                                                                                                                                                           | 5.04          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 93            |
| Purge Start                                                                                                                                                                                                                                               | 10:30         |

### @10:30, DTW:65.19, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 10:30                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 65.19                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @10:30, DTW:65.19, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:35, DTW:65.22, pH:6.53, temp:19.4, cond:1.91, turb:0.19, DO:7.59, redox:84.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 65.22 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.53  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.91                                                                             |
| Turbidity (NTU)               | 0.19                                                                             |
| Dissolved Oxygen (mg/L)       | 7.59                                                                             |
| Temperature (Degrees Celsius) | 19.4                                                                             |
| Redox (ORP mV)                | 84.1                                                                             |
| parameters                    | @10:35, DTW:65.22, pH:6.53, temp:19.4, cond:1.91, turb:0.19, DO:7.59, redox:84.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:40, DTW:65.22, pH:6.57, temp:20.1, cond:1.91, turb:0.02, DO:7.12, redox:60.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 65.22                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 6.57                                                                             |
| Conductivity (mS/cm)             | 1.91                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 7.12                                                                             |
| Temperature (Degrees Celsius)    | 20.1                                                                             |
| Redox (ORP mV)                   | 60.3                                                                             |
| parameters                       | @10:40, DTW:65.22, pH:6.57, temp:20.1, cond:1.91, turb:0.02, DO:7.12, redox:60.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:45, DTW:65.22, pH:6.62, temp:20.3, cond:1.92, turb:0.02, DO:6.86, redox:42.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 65.22                                                                            |
| Milliliters Purged (total)       | 1500                                                                             |
| pH                               | 6.62                                                                             |
| Conductivity (mS/cm)             | 1.92                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 6.86                                                                             |
| Temperature (Degrees Celsius)    | 20.3                                                                             |
| Redox (ORP mV)                   | 42.1                                                                             |
| parameters                       | @10:45, DTW:65.22, pH:6.62, temp:20.3, cond:1.92, turb:0.02, DO:6.86, redox:42.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:50, DTW:65.22, pH:6.63, temp:20.3, cond:1.92, turb:0.02, DO:6.83, redox:30.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:50 |
| Minutes Elapsed between readings | 5     |



|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 65.22                                                                            |
| Milliliters Purged (total)    | 2000                                                                             |
| pH                            | 6.63                                                                             |
| Conductivity (mS/cm)          | 1.92                                                                             |
| Turbidity (NTU)               | 0.02                                                                             |
| Dissolved Oxygen (mg/L)       | 6.83                                                                             |
| Temperature (Degrees Celsius) | 20.3                                                                             |
| Redox (ORP mV)                | 30.4                                                                             |
| parameters                    | @10:50, DTW:65.22, pH:6.63, temp:20.3, cond:1.92, turb:0.02, DO:6.83, redox:30.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:55, DTW:65.22, pH:6.64, temp:20.3, cond:1.93, turb:0.02, DO:6.81, redox:29.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 65.22                                                                            |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 6.64                                                                             |
| Conductivity (mS/cm)             | 1.93                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 6.81                                                                             |
| Temperature (Degrees Celsius)    | 20.3                                                                             |
| Redox (ORP mV)                   | 29.4                                                                             |
| parameters                       | @10:55, DTW:65.22, pH:6.64, temp:20.3, cond:1.93, turb:0.02, DO:6.81, redox:29.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:00, DTW:65.22, pH:6.64, temp:20.4, cond:1.93, turb:0.02, DO:6.76, redox:19.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 65.22                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 6.64                                                                             |
| Conductivity (mS/cm)             | 1.93                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 6.76                                                                             |
| Temperature (Degrees Celsius)    | 20.4                                                                             |
| Redox (ORP mV)                   | 19.3                                                                             |
| parameters                       | @11:00, DTW:65.22, pH:6.64, temp:20.4, cond:1.93, turb:0.02, DO:6.76, redox:19.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:05, DTW:65.22, pH:6.64, temp:20.4, cond:1.93, turb:0.02, DO:6.78, redox:16.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:05                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 65.22                                                                            |
| Milliliters Purged (total)       | 3500                                                                             |
| pH                               | 6.64                                                                             |
| Conductivity (mS/cm)             | 1.93                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 6.78                                                                             |
| Temperature (Degrees Celsius)    | 20.4                                                                             |
| Redox (ORP mV)                   | 16.4                                                                             |
| parameters                       | @11:05, DTW:65.22, pH:6.64, temp:20.4, cond:1.93, turb:0.02, DO:6.78, redox:16.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:10, DTW:65.22, pH:6.65, temp:20.4, cond:1.93, turb:0.02, DO:6.72, redox:8.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:10                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 65.22                                                                           |
| Milliliters Purged (total)       | 4000                                                                            |
| pH                               | 6.65                                                                            |
| Conductivity (mS/cm)             | 1.93                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 6.72                                                                            |
| Temperature (Degrees Celsius)    | 20.4                                                                            |
| Redox (ORP mV)                   | 8.9                                                                             |
| parameters                       | @11:10, DTW:65.22, pH:6.65, temp:20.4, cond:1.93, turb:0.02, DO:6.72, redox:8.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:15, DTW:65.22, pH:6.65, temp:20.4, cond:1.93, turb:0.02, DO:6.69, redox:5.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 65.22 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.65  |
| Conductivity (mS/cm)             | 1.93  |
| Turbidity (NTU)                  | 0.02  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 6.69                                                                            |
| Temperature (Degrees Celsius) | 20.4                                                                            |
| Redox (ORP mV)                | 5.1                                                                             |
| parameters                    | @11:15, DTW:65.22, pH:6.65, temp:20.4, cond:1.93, turb:0.02, DO:6.69, redox:5.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:20, DTW:65.22, pH:6.65, temp:20.4, cond:1.93, turb:0.02, DO:6.68, redox:-3.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 65.22                                                                            |
| Milliliters Purged (total)       | 5000                                                                             |
| pH                               | 6.65                                                                             |
| Conductivity (mS/cm)             | 1.93                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 6.68                                                                             |
| Temperature (Degrees Celsius)    | 20.4                                                                             |
| Redox (ORP mV)                   | -3.2                                                                             |
| parameters                       | @11:20, DTW:65.22, pH:6.65, temp:20.4, cond:1.93, turb:0.02, DO:6.68, redox:-3.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:25, DTW:65.22, pH:6.65, temp:20.4, cond:1.93, turb:0.02, DO:6.67, redox:-6.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 65.22                                                                            |
| Milliliters Purged (total)       | 5500                                                                             |
| pH                               | 6.65                                                                             |
| Conductivity (mS/cm)             | 1.93                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 6.67                                                                             |
| Temperature (Degrees Celsius)    | 20.4                                                                             |
| Redox (ORP mV)                   | -6.3                                                                             |
| parameters                       | @11:25, DTW:65.22, pH:6.65, temp:20.4, cond:1.93, turb:0.02, DO:6.67, redox:-6.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:30, DTW:65.22, pH:6.65, temp:20.5, cond:1.93, turb:0.02, DO:6.62, redox:-14.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 65.22 |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Milliliters Purged (total)                                                                                                                                                                                                                                                                                                                       | 6000                                                                              |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.65                                                                              |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1.93                                                                              |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 6.62                                                                              |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 20.5                                                                              |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -14.1                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @11:30, DTW:65.22, pH:6.65, temp:20.5, cond:1.93, turb:0.02, DO:6.62, redox:-14.1 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                   |

### @11:35, DTW:65.22, pH:6.65, temp:20.5, cond:1.93, turb:0.02, DO:6.58, redox:-16.1

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 11:35                                                                             |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                                 |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 100                                                                               |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 65.22                                                                             |
| Milliliters Purged (total)                                                                                                                                                                                                                                                                                                                       | 6500                                                                              |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.65                                                                              |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1.93                                                                              |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 6.58                                                                              |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 20.5                                                                              |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -16.1                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @11:35, DTW:65.22, pH:6.65, temp:20.5, cond:1.93, turb:0.02, DO:6.58, redox:-16.1 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                   |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 11:35                                                                             |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                       |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6500                                                                              |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.34                                                                              |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:35 |
| Color         | Clear |
| Notable odors | No    |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### P, TKN

|                     |                |
|---------------------|----------------|
| Constituent Sampled | P, TKN         |
| Container Type      | 250 mL Plastic |

|                      |       |
|----------------------|-------|
| Number of Containers | 1     |
| Preservative         | H2SO4 |

### Nitrate

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | Nitrate        |
| Container Type       | 250 mL Plastic |
| Number of Containers | 1              |
| Preservative         | None           |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Photo of Well



Signature

34/L

Signed 2019-08-27 14:47:18 UTC

---



## 2019-12-05, MW-13-22

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-05 14:41:37 UTC by Billy Cobern |
| Updated                                                                                           | 2019-12-05 15:07:30 UTC by Billy Cobern |
| Location                                                                                          | 42.7422977518688, -84.5886164066238     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-12-05                              |
| Well ID                                                                                           | MW-13-22                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Cloudy 30's                             |

### Evacuation Details

|                                                                                                                                                                                                                                                                   |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                  | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                          | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                       | 64.5          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                              | 96            |
| Water Column                                                                                                                                                                                                                                                      | 31.5          |
| Gallons in Well                                                                                                                                                                                                                                                   | 5.12          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1\text{foot}$ ] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                      | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                            | Bladder       |
| Sample Method                                                                                                                                                                                                                                                     | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                          | 93.5          |
| Purge Start                                                                                                                                                                                                                                                       | 09:15         |

### @09:15, DTW:64.5, pH:., temp:., cond:., turb:., DO:., redox:

|                            |                                                              |
|----------------------------|--------------------------------------------------------------|
| Reading Time               | 09:15                                                        |
| Rate (mL/min)              | 100                                                          |
| Depth to Water (ft)        | 64.5                                                         |
| Milliliters Purged (total) | 0                                                            |
| parameters                 | @09:15, DTW:64.5, pH:., temp:., cond:., turb:., DO:., redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:20, DTW:64.51, pH:7.03, temp:7.3, cond:1.9, turb:28.4, DO:5.48, redox:-85.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 64.51 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.03  |
| Conductivity (mS/cm)             | 1.9   |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Turbidity (NTU)               | 28.4                                                                            |
| Dissolved Oxygen (mg/L)       | 5.48                                                                            |
| Temperature (Degrees Celsius) | 7.3                                                                             |
| Redox (ORP mV)                | -85.3                                                                           |
| parameters                    | @09:20, DTW:64.51, pH:7.03, temp:7.3, cond:1.9, turb:28.4, DO:5.48, redox:-85.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:25, DTW:64.52, pH:6.99, temp:8, cond:1.9, turb:25.1, DO:4.85, redox:-85.3**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 09:25                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 64.52                                                                         |
| Milliliters Purged (total)       | 100                                                                           |
| pH                               | 6.99                                                                          |
| Conductivity (mS/cm)             | 1.9                                                                           |
| Turbidity (NTU)                  | 25.1                                                                          |
| Dissolved Oxygen (mg/L)          | 4.85                                                                          |
| Temperature (Degrees Celsius)    | 8                                                                             |
| Redox (ORP mV)                   | -85.3                                                                         |
| parameters                       | @09:25, DTW:64.52, pH:6.99, temp:8, cond:1.9, turb:25.1, DO:4.85, redox:-85.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:30, DTW:64.53, pH:6.96, temp:8.4, cond:1.93, turb:23.1, DO:4.11, redox:-84.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 64.53                                                                            |
| Milliliters Purged (total)       | 1500                                                                             |
| pH                               | 6.96                                                                             |
| Conductivity (mS/cm)             | 1.93                                                                             |
| Turbidity (NTU)                  | 23.1                                                                             |
| Dissolved Oxygen (mg/L)          | 4.11                                                                             |
| Temperature (Degrees Celsius)    | 8.4                                                                              |
| Redox (ORP mV)                   | -84.2                                                                            |
| parameters                       | @09:30, DTW:64.53, pH:6.96, temp:8.4, cond:1.93, turb:23.1, DO:4.11, redox:-84.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:35, DTW:64.53, pH:6.92, temp:8.8, cond:1.92, turb:21.1, DO:3.04, redox:-82.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Depth to Water (ft)           | 64.53                                                                            |
| Milliliters Purged (total)    | 2000                                                                             |
| pH                            | 6.92                                                                             |
| Conductivity (mS/cm)          | 1.92                                                                             |
| Turbidity (NTU)               | 21.1                                                                             |
| Dissolved Oxygen (mg/L)       | 3.04                                                                             |
| Temperature (Degrees Celsius) | 8.8                                                                              |
| Redox (ORP mV)                | -82.6                                                                            |
| parameters                    | @09:35, DTW:64.53, pH:6.92, temp:8.8, cond:1.92, turb:21.1, DO:3.04, redox:-82.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:40, DTW:64.53, pH:6.91, temp:9.2, cond:1.93, turb:18.6, DO:2.6, redox:-81.6**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 64.53                                                                           |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 6.91                                                                            |
| Conductivity (mS/cm)             | 1.93                                                                            |
| Turbidity (NTU)                  | 18.6                                                                            |
| Dissolved Oxygen (mg/L)          | 2.6                                                                             |
| Temperature (Degrees Celsius)    | 9.2                                                                             |
| Redox (ORP mV)                   | -81.6                                                                           |
| parameters                       | @09:40, DTW:64.53, pH:6.91, temp:9.2, cond:1.93, turb:18.6, DO:2.6, redox:-81.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:45, DTW:64.53, pH:6.9, temp:9.2, cond:1.93, turb:15.7, DO:2.33, redox:-81.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 64.53                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 6.9                                                                             |
| Conductivity (mS/cm)             | 1.93                                                                            |
| Turbidity (NTU)                  | 15.7                                                                            |
| Dissolved Oxygen (mg/L)          | 2.33                                                                            |
| Temperature (Degrees Celsius)    | 9.2                                                                             |
| Redox (ORP mV)                   | -81.2                                                                           |
| parameters                       | @09:45, DTW:64.53, pH:6.9, temp:9.2, cond:1.93, turb:15.7, DO:2.33, redox:-81.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:50, DTW:64.53, pH:6.89, temp:9.3, cond:1.93, turb:13.6, DO:2.24, redox:-80.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:50                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 64.53                                                                            |
| Milliliters Purged (total)       | 3500                                                                             |
| pH                               | 6.89                                                                             |
| Conductivity (mS/cm)             | 1.93                                                                             |
| Turbidity (NTU)                  | 13.6                                                                             |
| Dissolved Oxygen (mg/L)          | 2.24                                                                             |
| Temperature (Degrees Celsius)    | 9.3                                                                              |
| Redox (ORP mV)                   | -80.4                                                                            |
| parameters                       | @09:50, DTW:64.53, pH:6.89, temp:9.3, cond:1.93, turb:13.6, DO:2.24, redox:-80.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:55, DTW:64.53, pH:6.89, temp:9.2, cond:1.95, turb:11.1, DO:2.12, redox:-79.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 64.53                                                                            |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 6.89                                                                             |
| Conductivity (mS/cm)             | 1.95                                                                             |
| Turbidity (NTU)                  | 11.1                                                                             |
| Dissolved Oxygen (mg/L)          | 2.12                                                                             |
| Temperature (Degrees Celsius)    | 9.2                                                                              |
| Redox (ORP mV)                   | -79.7                                                                            |
| parameters                       | @09:55, DTW:64.53, pH:6.89, temp:9.2, cond:1.95, turb:11.1, DO:2.12, redox:-79.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:00, DTW:64.53, pH:6.88, temp:9.4, cond:1.93, turb:9.67, DO:1.99, redox:-78.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 64.53 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.88  |
| Conductivity (mS/cm)             | 1.93  |
| Turbidity (NTU)                  | 9.67  |
| Dissolved Oxygen (mg/L)          | 1.99  |
| Temperature (Degrees Celsius)    | 9.4   |
| Redox (ORP mV)                   | -78.8 |

parameters

@10:00, DTW:64.53, pH:6.88, temp:9.4, cond:1.93, turb:9.67, DO:1.99, redox:-78.8

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:05, DTW:64.53, pH:6.87, temp:9.4, cond:1.95, turb:9.53, DO:1.94, redox:-78.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 64.53 |
| Milliliters Purged (total)       | 5000  |
| pH                               | 6.87  |
| Conductivity (mS/cm)             | 1.95  |
| Turbidity (NTU)                  | 9.53  |
| Dissolved Oxygen (mg/L)          | 1.94  |
| Temperature (Degrees Celsius)    | 9.4   |
| Redox (ORP mV)                   | -78.6 |

parameters

@10:05, DTW:64.53, pH:6.87, temp:9.4, cond:1.95, turb:9.53, DO:1.94, redox:-78.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:10, DTW:64.53, pH:6.87, temp:9.5, cond:1.95, turb:9.12, DO:1.91, redox:-78.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 64.53 |
| Milliliters Purged (total)       | 5500  |
| pH                               | 6.87  |
| Conductivity (mS/cm)             | 1.95  |
| Turbidity (NTU)                  | 9.12  |
| Dissolved Oxygen (mg/L)          | 1.91  |
| Temperature (Degrees Celsius)    | 9.5   |
| Redox (ORP mV)                   | -78.1 |

parameters

@10:10, DTW:64.53, pH:6.87, temp:9.5, cond:1.95, turb:9.12, DO:1.91, redox:-78.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 10:10       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 5500        |
| Well Volumes Purged           | 0.28        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:10 |
| Color         | Clear |
| Notable odors | No    |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to be 'B. H.' or similar, written in a cursive style.

Signed 2019-12-05 14:43:45 UTC



## 2019-06-05, MW-13-23, MW-13-23

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 12:34:59 EDT by Donald Richmond |
| Updated                                                                                           | 2019-06-05 15:29:17 EDT by Christine Gregg |
| Location                                                                                          | 42.74233773, -84.58775458                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-05                                 |
| Well Identification                                                                               | MW-13-23                                   |
| Well ID                                                                                           | MW-13-23                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | 72 rain                                    |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 65.8          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder       |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                | 12:30         |

### @12:35, DTW:65.8, pH:6.56, temp:22.1, cond:2.28, turb:929, DO:1.1, redox:36.2

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Reading Time                  | 12:35                                                                         |
| Rate (mL/min)                 | 200                                                                           |
| Depth to Water (ft)           | 65.8                                                                          |
| pH                            | 6.56                                                                          |
| Conductivity (mS/cm)          | 2.28                                                                          |
| Turbidity (NTU)               | 929                                                                           |
| Dissolved Oxygen (mg/L)       | 1.1                                                                           |
| Temperature (Degrees Celsius) | 22.1                                                                          |
| Redox (ORP mV)                | 36.2                                                                          |
| parameters                    | @12:35, DTW:65.8, pH:6.56, temp:22.1, cond:2.28, turb:929, DO:1.1, redox:36.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:40, DTW:65.8, pH:6.57, temp:21.2, cond:2.21, turb:99.1, DO:1.28, redox:41.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 6.57  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 2.21                                                                            |
| Turbidity (NTU)               | 99.1                                                                            |
| Dissolved Oxygen (mg/L)       | 1.28                                                                            |
| Temperature (Degrees Celsius) | 21.2                                                                            |
| Redox (ORP mV)                | 41.7                                                                            |
| parameters                    | @12:40, DTW:65.8, pH:6.57, temp:21.2, cond:2.21, turb:99.1, DO:1.28, redox:41.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:45, DTW:65.8, pH:6.59, temp:21.5, cond:2.16, turb:746, DO:1.6, redox:44.6**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 12:45                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 65.8                                                                          |
| pH                               | 6.59                                                                          |
| Conductivity (mS/cm)             | 2.16                                                                          |
| Turbidity (NTU)                  | 746                                                                           |
| Dissolved Oxygen (mg/L)          | 1.6                                                                           |
| Temperature (Degrees Celsius)    | 21.5                                                                          |
| Redox (ORP mV)                   | 44.6                                                                          |
| parameters                       | @12:45, DTW:65.8, pH:6.59, temp:21.5, cond:2.16, turb:746, DO:1.6, redox:44.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:50, DTW:65.8, pH:6.63, temp:21.1, cond:2.08, turb:221, DO:2.61, redox:58**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 12:50                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 65.8                                                                         |
| pH                               | 6.63                                                                         |
| Conductivity (mS/cm)             | 2.08                                                                         |
| Turbidity (NTU)                  | 221                                                                          |
| Dissolved Oxygen (mg/L)          | 2.61                                                                         |
| Temperature (Degrees Celsius)    | 21.1                                                                         |
| Redox (ORP mV)                   | 58                                                                           |
| parameters                       | @12:50, DTW:65.8, pH:6.63, temp:21.1, cond:2.08, turb:221, DO:2.61, redox:58 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:55, DTW:65.8, pH:6.64, temp:20.9, cond:2.06, turb:185, DO:3.08, redox:62.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |

|                               |      |
|-------------------------------|------|
| pH                            | 6.64 |
| Conductivity (mS/cm)          | 2.06 |
| Turbidity (NTU)               | 185  |
| Dissolved Oxygen (mg/L)       | 3.08 |
| Temperature (Degrees Celsius) | 20.9 |
| Redox (ORP mV)                | 62.4 |

parameters @12:55, DTW:65.8, pH:6.64, temp:20.9, cond:2.06, turb:185, DO:3.08, redox:62.4

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:00, DTW:65.8, pH:6.62, temp:21.7, cond:2.07, turb:174, DO:2.99, redox:71.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 6.62  |
| Conductivity (mS/cm)             | 2.07  |
| Turbidity (NTU)                  | 174   |
| Dissolved Oxygen (mg/L)          | 2.99  |
| Temperature (Degrees Celsius)    | 21.7  |
| Redox (ORP mV)                   | 71.1  |

parameters @13:00, DTW:65.8, pH:6.62, temp:21.7, cond:2.07, turb:174, DO:2.99, redox:71.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:05, DTW:65.8, pH:6.6, temp:21.7, cond:2.16, turb:65.2, DO:2.61, redox:79.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 6.6   |
| Conductivity (mS/cm)             | 2.16  |
| Turbidity (NTU)                  | 65.2  |
| Dissolved Oxygen (mg/L)          | 2.61  |
| Temperature (Degrees Celsius)    | 21.7  |
| Redox (ORP mV)                   | 79.8  |

parameters @13:05, DTW:65.8, pH:6.6, temp:21.7, cond:2.16, turb:65.2, DO:2.61, redox:79.8

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:10, DTW:65.8, pH:6.61, temp:21.2, cond:2.17, turb:65.2, DO:2.76, redox:81.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Depth to Water (ft)           | 65.8                                                                            |
| pH                            | 6.61                                                                            |
| Conductivity (mS/cm)          | 2.17                                                                            |
| Turbidity (NTU)               | 65.2                                                                            |
| Dissolved Oxygen (mg/L)       | 2.76                                                                            |
| Temperature (Degrees Celsius) | 21.2                                                                            |
| Redox (ORP mV)                | 81.7                                                                            |
| parameters                    | @13:10, DTW:65.8, pH:6.61, temp:21.2, cond:2.17, turb:65.2, DO:2.76, redox:81.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:15, DTW:65.8, pH:6.6, temp:21, cond:2.17, turb:54.4, DO:2.76, redox:82.7**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 13:15                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 65.8                                                                         |
| pH                               | 6.6                                                                          |
| Conductivity (mS/cm)             | 2.17                                                                         |
| Turbidity (NTU)                  | 54.4                                                                         |
| Dissolved Oxygen (mg/L)          | 2.76                                                                         |
| Temperature (Degrees Celsius)    | 21                                                                           |
| Redox (ORP mV)                   | 82.7                                                                         |
| parameters                       | @13:15, DTW:65.8, pH:6.6, temp:21, cond:2.17, turb:54.4, DO:2.76, redox:82.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:14, DTW:65.8, pH:6.61, temp:21.9, cond:2.16, turb:43.9, DO:2.72, redox:83.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:14                                                                           |
| Minutes Elapsed between readings | 1439                                                                            |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.8                                                                            |
| pH                               | 6.61                                                                            |
| Conductivity (mS/cm)             | 2.16                                                                            |
| Turbidity (NTU)                  | 43.9                                                                            |
| Dissolved Oxygen (mg/L)          | 2.72                                                                            |
| Temperature (Degrees Celsius)    | 21.9                                                                            |
| Redox (ORP mV)                   | 83.2                                                                            |
| parameters                       | @13:14, DTW:65.8, pH:6.61, temp:21.9, cond:2.16, turb:43.9, DO:2.72, redox:83.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:25, DTW:65.8, pH:6.61, temp:21.6, cond:2.17, turb:52.5, DO:2.84, redox:90.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:25 |
| Minutes Elapsed between readings | 11    |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 65.8                                                                            |
| pH                            | 6.61                                                                            |
| Conductivity (mS/cm)          | 2.17                                                                            |
| Turbidity (NTU)               | 52.5                                                                            |
| Dissolved Oxygen (mg/L)       | 2.84                                                                            |
| Temperature (Degrees Celsius) | 21.6                                                                            |
| Redox (ORP mV)                | 90.5                                                                            |
| parameters                    | @13:25, DTW:65.8, pH:6.61, temp:21.6, cond:2.17, turb:52.5, DO:2.84, redox:90.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:30, DTW:65.8, pH:6.61, temp:21.9, cond:2.16, turb:67.6, DO:2.95, redox:90.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.8                                                                            |
| pH                               | 6.61                                                                            |
| Conductivity (mS/cm)             | 2.16                                                                            |
| Turbidity (NTU)                  | 67.6                                                                            |
| Dissolved Oxygen (mg/L)          | 2.95                                                                            |
| Temperature (Degrees Celsius)    | 21.9                                                                            |
| Redox (ORP mV)                   | 90.3                                                                            |
| parameters                       | @13:30, DTW:65.8, pH:6.61, temp:21.9, cond:2.16, turb:67.6, DO:2.95, redox:90.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 13:30   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 2.5     |

### **Sample Information**

|               |       |
|---------------|-------|
| Sample Time   | 13:30 |
| Color         | None  |
| Notable odors | None  |

### **1,4-Dioxane**

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

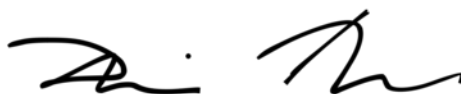
### **Well Information**

|                        |         |
|------------------------|---------|
| Well Location          | Plant 3 |
| Condition of Well      | Good    |
| Well Locked at Arrival | Yes     |

Well Locked at Departure

Yes

Signature

A handwritten signature in black ink, consisting of two distinct, stylized cursive letters, possibly 'A' and 'R', followed by a period.

Signed 2019-06-05 17:32:07 UTC

## 2019-06-06, MW-13-24, MW-13-24

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 09:14:59 EDT by Donald Richmond |
| Updated                                                                                           | 2019-06-06 09:36:10 EDT by Christine Gregg |
| Location                                                                                          | 42.7423985, -84.58932946                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-13-24                                   |
| Well ID                                                                                           | MW-13-24                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Overcast, 60 degrees                       |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 65            |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder       |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                | 09:05         |

### @09:15, DTW:65.8, pH:10.09, temp:15.2, cond:0.62, turb:6.02, DO:6.36, redox:144.4

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 09:15                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 65.8                                                                              |
| pH                            | 10.09                                                                             |
| Conductivity (mS/cm)          | 0.62                                                                              |
| Turbidity (NTU)               | 6.02                                                                              |
| Dissolved Oxygen (mg/L)       | 6.36                                                                              |
| Temperature (Degrees Celsius) | 15.2                                                                              |
| Redox (ORP mV)                | 144.4                                                                             |
| parameters                    | @09:15, DTW:65.8, pH:10.09, temp:15.2, cond:0.62, turb:6.02, DO:6.36, redox:144.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:20, DTW:65.8, pH:10.09, temp:15.5, cond:0.62, turb:6.16, DO:5.82, redox:133.2

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:20 |
| Minutes Elapsed between readings | 2     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 10.09 |



|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.62                                                                              |
| Turbidity (NTU)               | 6.16                                                                              |
| Dissolved Oxygen (mg/L)       | 5.82                                                                              |
| Temperature (Degrees Celsius) | 15.5                                                                              |
| Redox (ORP mV)                | 133.2                                                                             |
| parameters                    | @09:20, DTW:65.8, pH:10.09, temp:15.5, cond:0.62, turb:6.16, DO:5.82, redox:133.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:25, DTW:65.8, pH:10.1, temp:15.6, cond:0.62, turb:3.86, DO:5.69, redox:130.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.8                                                                             |
| pH                               | 10.1                                                                             |
| Conductivity (mS/cm)             | 0.62                                                                             |
| Turbidity (NTU)                  | 3.86                                                                             |
| Dissolved Oxygen (mg/L)          | 5.69                                                                             |
| Temperature (Degrees Celsius)    | 15.6                                                                             |
| Redox (ORP mV)                   | 130.2                                                                            |
| parameters                       | @09:25, DTW:65.8, pH:10.1, temp:15.6, cond:0.62, turb:3.86, DO:5.69, redox:130.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:30, DTW:65.8, pH:10.08, temp:15.4, cond:0.62, turb:3.14, DO:5.86, redox:127.7**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:30                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 65.8                                                                              |
| pH                               | 10.08                                                                             |
| Conductivity (mS/cm)             | 0.62                                                                              |
| Turbidity (NTU)                  | 3.14                                                                              |
| Dissolved Oxygen (mg/L)          | 5.86                                                                              |
| Temperature (Degrees Celsius)    | 15.4                                                                              |
| Redox (ORP mV)                   | 127.7                                                                             |
| parameters                       | @09:30, DTW:65.8, pH:10.08, temp:15.4, cond:0.62, turb:3.14, DO:5.86, redox:127.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 09:30   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 0.5     |

### **Sample Information**

|             |       |
|-------------|-------|
| Sample Time | 09:30 |
|-------------|-------|

|               |      |
|---------------|------|
| Color         | None |
| Notable odors | None |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature



Signed 2019-06-06 13:17:34 UTC

## 2019-06-05, MW-13-25, MW-13-25

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 15:15:55 EDT by Donald Richmond |
| Updated                                                                                           | 2019-06-05 17:00:03 EDT by Christine Gregg |
| Location                                                                                          | 42.74183964, -84.58863032                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-05                                 |
| Well Identification                                                                               | MW-13-25                                   |
| Well ID                                                                                           | MW-13-25                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | 75                                         |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 65.53         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                  | 15:25         |

### @15:30, DTW:65.8, pH:6.58, temp:24.8, cond:2.54, turb:61.5, DO:1.28, redox:35

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Reading Time                  | 15:30                                                                         |
| Rate (mL/min)                 | 200                                                                           |
| Depth to Water (ft)           | 65.8                                                                          |
| pH                            | 6.58                                                                          |
| Conductivity (mS/cm)          | 2.54                                                                          |
| Turbidity (NTU)               | 61.5                                                                          |
| Dissolved Oxygen (mg/L)       | 1.28                                                                          |
| Temperature (Degrees Celsius) | 24.8                                                                          |
| Redox (ORP mV)                | 35                                                                            |
| parameters                    | @15:30, DTW:65.8, pH:6.58, temp:24.8, cond:2.54, turb:61.5, DO:1.28, redox:35 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:35, DTW:65.8, pH:6.57, temp:24.8, cond:2.52, turb:40, DO:0.62, redox:-3.8

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 6.57  |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 2.52                                                                          |
| Turbidity (NTU)               | 40                                                                            |
| Dissolved Oxygen (mg/L)       | 0.62                                                                          |
| Temperature (Degrees Celsius) | 24.8                                                                          |
| Redox (ORP mV)                | -3.8                                                                          |
| parameters                    | @15:35, DTW:65.8, pH:6.57, temp:24.8, cond:2.52, turb:40, DO:0.62, redox:-3.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:40, DTW:65.8, pH:6.58, temp:24.1, cond:2.43, turb:29.2, DO:0.43, redox:15.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.8                                                                            |
| pH                               | 6.58                                                                            |
| Conductivity (mS/cm)             | 2.43                                                                            |
| Turbidity (NTU)                  | 29.2                                                                            |
| Dissolved Oxygen (mg/L)          | 0.43                                                                            |
| Temperature (Degrees Celsius)    | 24.1                                                                            |
| Redox (ORP mV)                   | 15.3                                                                            |
| parameters                       | @15:40, DTW:65.8, pH:6.58, temp:24.1, cond:2.43, turb:29.2, DO:0.43, redox:15.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:45, DTW:65.8, pH:6.6, temp:24.3, cond:2.16, turb:24.4, DO:0.32, redox:-63.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.8                                                                            |
| pH                               | 6.6                                                                             |
| Conductivity (mS/cm)             | 2.16                                                                            |
| Turbidity (NTU)                  | 24.4                                                                            |
| Dissolved Oxygen (mg/L)          | 0.32                                                                            |
| Temperature (Degrees Celsius)    | 24.3                                                                            |
| Redox (ORP mV)                   | -63.1                                                                           |
| parameters                       | @15:45, DTW:65.8, pH:6.6, temp:24.3, cond:2.16, turb:24.4, DO:0.32, redox:-63.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:50, DTW:65.8, pH:6.62, temp:30.2, cond:2.03, turb:22.6, DO:0.61, redox:-65**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |

|                               |      |
|-------------------------------|------|
| pH                            | 6.62 |
| Conductivity (mS/cm)          | 2.03 |
| Turbidity (NTU)               | 22.6 |
| Dissolved Oxygen (mg/L)       | 0.61 |
| Temperature (Degrees Celsius) | 30.2 |
| Redox (ORP mV)                | -65  |

parameters @15:50, DTW:65.8, pH:6.62, temp:30.2, cond:2.03, turb:22.6, DO:0.61, redox:-65

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:55, DTW:65.8, pH:6.63, temp:26.1, cond:1.99, turb:283, DO:2.85, redox:64.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 6.63  |
| Conductivity (mS/cm)             | 1.99  |
| Turbidity (NTU)                  | 283   |
| Dissolved Oxygen (mg/L)          | 2.85  |
| Temperature (Degrees Celsius)    | 26.1  |
| Redox (ORP mV)                   | 64.1  |

parameters @15:55, DTW:65.8, pH:6.63, temp:26.1, cond:1.99, turb:283, DO:2.85, redox:64.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:00, DTW:65.8, pH:6.63, temp:24.7, cond:1.62, turb:157, DO:0.34, redox:-49.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 16:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 6.63  |
| Conductivity (mS/cm)             | 1.62  |
| Turbidity (NTU)                  | 157   |
| Dissolved Oxygen (mg/L)          | 0.34  |
| Temperature (Degrees Celsius)    | 24.7  |
| Redox (ORP mV)                   | -49.2 |

parameters @16:00, DTW:65.8, pH:6.63, temp:24.7, cond:1.62, turb:157, DO:0.34, redox:-49.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:05, DTW:65.8, pH:6.63, temp:24.6, cond:1.58, turb:45, DO:0.27, redox:-49.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 16:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Depth to Water (ft)           | 65.8                                                                           |
| pH                            | 6.63                                                                           |
| Conductivity (mS/cm)          | 1.58                                                                           |
| Turbidity (NTU)               | 45                                                                             |
| Dissolved Oxygen (mg/L)       | 0.27                                                                           |
| Temperature (Degrees Celsius) | 24.6                                                                           |
| Redox (ORP mV)                | -49.2                                                                          |
| parameters                    | @16:05, DTW:65.8, pH:6.63, temp:24.6, cond:1.58, turb:45, DO:0.27, redox:-49.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:10, DTW:65.8, pH:6.63, temp:24.8, cond:1.54, turb:41.8, DO:0.26, redox:-49.9**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 16:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.8                                                                             |
| pH                               | 6.63                                                                             |
| Conductivity (mS/cm)             | 1.54                                                                             |
| Turbidity (NTU)                  | 41.8                                                                             |
| Dissolved Oxygen (mg/L)          | 0.26                                                                             |
| Temperature (Degrees Celsius)    | 24.8                                                                             |
| Redox (ORP mV)                   | -49.9                                                                            |
| parameters                       | @16:10, DTW:65.8, pH:6.63, temp:24.8, cond:1.54, turb:41.8, DO:0.26, redox:-49.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:15, DTW:65.8, pH:6.63, temp:27, cond:1.51, turb:23.9, DO:0.25, redox:-70**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 16:15                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 65.8                                                                         |
| pH                               | 6.63                                                                         |
| Conductivity (mS/cm)             | 1.51                                                                         |
| Turbidity (NTU)                  | 23.9                                                                         |
| Dissolved Oxygen (mg/L)          | 0.25                                                                         |
| Temperature (Degrees Celsius)    | 27                                                                           |
| Redox (ORP mV)                   | -70                                                                          |
| parameters                       | @16:15, DTW:65.8, pH:6.63, temp:27, cond:1.51, turb:23.9, DO:0.25, redox:-70 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:20, DTW:65.8, pH:6.64, temp:25.5, cond:1.55, turb:18.1, DO:0.23, redox:-70.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 16:20 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 65.8                                                                             |
| pH                            | 6.64                                                                             |
| Conductivity (mS/cm)          | 1.55                                                                             |
| Turbidity (NTU)               | 18.1                                                                             |
| Dissolved Oxygen (mg/L)       | 0.23                                                                             |
| Temperature (Degrees Celsius) | 25.5                                                                             |
| Redox (ORP mV)                | -70.5                                                                            |
| parameters                    | @16:20, DTW:65.8, pH:6.64, temp:25.5, cond:1.55, turb:18.1, DO:0.23, redox:-70.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:25, DTW:65.8, pH:6.62, temp:24.6, cond:1.57, turb:12.3, DO:0.2, redox:-69.6**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 16:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.8                                                                            |
| pH                               | 6.62                                                                            |
| Conductivity (mS/cm)             | 1.57                                                                            |
| Turbidity (NTU)                  | 12.3                                                                            |
| Dissolved Oxygen (mg/L)          | 0.2                                                                             |
| Temperature (Degrees Celsius)    | 24.6                                                                            |
| Redox (ORP mV)                   | -69.6                                                                           |
| parameters                       | @16:25, DTW:65.8, pH:6.62, temp:24.6, cond:1.57, turb:12.3, DO:0.2, redox:-69.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 16:25   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 2       |

### **Sample Information**

|               |       |
|---------------|-------|
| Sample Time   | 16:25 |
| Color         | None  |
| Notable odors | None  |

### **1,4-Dioxane**

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### **Well Information**

|                        |         |
|------------------------|---------|
| Well Location          | Plant 3 |
| Condition of Well      | Good    |
| Well Locked at Arrival | Yes     |



Well Locked at Departure

Yes

---

Signature

*Tri Dim*

Signed 2019-06-05 19:52:43 UTC

---

## 2019-12-06, MW-13-25

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-06 13:43:16 UTC by Heather Woodrum |
| Updated                                                                                           | 2019-12-10 15:50:33 UTC by Heather Woodrum |
| Location                                                                                          | 42.7418743819396, -84.588519092728         |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Heather Woodrum                            |
| Date                                                                                              | 2019-12-06                                 |
| Well ID                                                                                           | MW-13-25                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | Dup-04                                     |
| Weather                                                                                           | Cold, windy                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing     |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2                 |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 65.15             |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 72                |
| Water Column                                                                                                                                                                                                                                              | 6.849999999999999 |
| Gallons in Well                                                                                                                                                                                                                                           | 1.11              |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                   |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow          |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder           |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow          |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 69                |
| Purge Start                                                                                                                                                                                                                                               | 08:55             |

### @09:05, DTW:65.2, pH:6.82, temp:11.4, cond:1.02, turb:1.65, DO:2.03, redox:-54.3

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 09:05                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 65.2                                                                             |
| pH                            | 6.82                                                                             |
| Conductivity (mS/cm)          | 1.02                                                                             |
| Turbidity (NTU)               | 1.65                                                                             |
| Dissolved Oxygen (mg/L)       | 2.03                                                                             |
| Temperature (Degrees Celsius) | 11.4                                                                             |
| Redox (ORP mV)                | -54.3                                                                            |
| parameters                    | @09:05, DTW:65.2, pH:6.82, temp:11.4, cond:1.02, turb:1.65, DO:2.03, redox:-54.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:10, DTW:65.2, pH:6.81, temp:11.7, cond:1.29, turb:0.02, DO:1.01, redox:-62.9

|              |       |
|--------------|-------|
| Reading Time | 09:10 |
|--------------|-------|

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.2                                                                             |
| pH                               | 6.81                                                                             |
| Conductivity (mS/cm)             | 1.29                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 1.01                                                                             |
| Temperature (Degrees Celsius)    | 11.7                                                                             |
| Redox (ORP mV)                   | -62.9                                                                            |
| parameters                       | @09:10, DTW:65.2, pH:6.81, temp:11.7, cond:1.29, turb:0.02, DO:1.01, redox:-62.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:15, DTW:65.2, pH:6.79, temp:11.6, cond:1.48, turb:0.02, DO:0.92, redox:-61.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.2                                                                             |
| pH                               | 6.79                                                                             |
| Conductivity (mS/cm)             | 1.48                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.92                                                                             |
| Temperature (Degrees Celsius)    | 11.6                                                                             |
| Redox (ORP mV)                   | -61.4                                                                            |
| parameters                       | @09:15, DTW:65.2, pH:6.79, temp:11.6, cond:1.48, turb:0.02, DO:0.92, redox:-61.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:20, DTW:65.2, pH:6.78, temp:11.7, cond:1.63, turb:0.02, DO:0.97, redox:-59.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.2                                                                             |
| pH                               | 6.78                                                                             |
| Conductivity (mS/cm)             | 1.63                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.97                                                                             |
| Temperature (Degrees Celsius)    | 11.7                                                                             |
| Redox (ORP mV)                   | -59.3                                                                            |
| parameters                       | @09:20, DTW:65.2, pH:6.78, temp:11.7, cond:1.63, turb:0.02, DO:0.97, redox:-59.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:25, DTW:65.2, pH:6.77, temp:11.6, cond:1.68, turb:0.02, DO:0.97, redox:-59.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.2                                                                             |
| pH                               | 6.77                                                                             |
| Conductivity (mS/cm)             | 1.68                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.97                                                                             |
| Temperature (Degrees Celsius)    | 11.6                                                                             |
| Redox (ORP mV)                   | -59.3                                                                            |
| parameters                       | @09:25, DTW:65.2, pH:6.77, temp:11.6, cond:1.68, turb:0.02, DO:0.97, redox:-59.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:30, DTW:65.2, pH:6.77, temp:11.8, cond:1.68, turb:0.02, DO:0.95, redox:-58.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.2                                                                             |
| pH                               | 6.77                                                                             |
| Conductivity (mS/cm)             | 1.68                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.95                                                                             |
| Temperature (Degrees Celsius)    | 11.8                                                                             |
| Redox (ORP mV)                   | -58.6                                                                            |
| parameters                       | @09:30, DTW:65.2, pH:6.77, temp:11.8, cond:1.68, turb:0.02, DO:0.95, redox:-58.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 09:30 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 09:35 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                        |        |
|------------------------|--------|
| Well Location          | Plant3 |
| Condition of Well      | Good   |
| Well Locked at Arrival | Yes    |

Well Locked at Departure

Yes

Signature

A handwritten signature in black ink, consisting of stylized, overlapping loops and a trailing flourish.

Signed 2019-12-06 13:45:45 UTC

## 2019-06-05, MW-13-28, MW-13-28

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 10:29:23 EDT by Donald Richmond |
| Updated                                                                                           | 2019-06-05 15:29:09 EDT by Christine Gregg |
| Location                                                                                          | 42.74243283, -84.58822145                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-05                                 |
| Well Identification                                                                               | MW-13-28                                   |
| Well ID                                                                                           | MW-13-28                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | 65                                         |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 4             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 66.95         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder       |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                | 10:20         |

### @10:30, DTW:66.95, pH:6.79, temp:20.2, cond:1.47, turb:108, DO:0.7, redox:-95.2

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 10:30                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 66.95                                                                           |
| pH                            | 6.79                                                                            |
| Conductivity (mS/cm)          | 1.47                                                                            |
| Turbidity (NTU)               | 108                                                                             |
| Dissolved Oxygen (mg/L)       | 0.7                                                                             |
| Temperature (Degrees Celsius) | 20.2                                                                            |
| Redox (ORP mV)                | -95.2                                                                           |
| parameters                    | @10:30, DTW:66.95, pH:6.79, temp:20.2, cond:1.47, turb:108, DO:0.7, redox:-95.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:35, DTW:66.95, pH:6.86, temp:19.1, cond:1.42, turb:68.3, DO:1.06, redox:-82.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:35 |
| Minutes Elapsed between readings | 6     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 66.95 |
| pH                               | 6.86  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.42                                                                              |
| Turbidity (NTU)               | 68.3                                                                              |
| Dissolved Oxygen (mg/L)       | 1.06                                                                              |
| Temperature (Degrees Celsius) | 19.1                                                                              |
| Redox (ORP mV)                | -82.9                                                                             |
| parameters                    | @10:35, DTW:66.95, pH:6.86, temp:19.1, cond:1.42, turb:68.3, DO:1.06, redox:-82.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:40, DTW:66.95, pH:6.87, temp:19.2, cond:1.4, turb:53.2, DO:0.72, redox:-88.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 66.95                                                                            |
| pH                               | 6.87                                                                             |
| Conductivity (mS/cm)             | 1.4                                                                              |
| Turbidity (NTU)                  | 53.2                                                                             |
| Dissolved Oxygen (mg/L)          | 0.72                                                                             |
| Temperature (Degrees Celsius)    | 19.2                                                                             |
| Redox (ORP mV)                   | -88.6                                                                            |
| parameters                       | @10:40, DTW:66.95, pH:6.87, temp:19.2, cond:1.4, turb:53.2, DO:0.72, redox:-88.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:45, DTW:66.95, pH:6.88, temp:19.7, cond:1.41, turb:49.9, DO:0.53, redox:-92.7**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:45                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 66.95                                                                             |
| pH                               | 6.88                                                                              |
| Conductivity (mS/cm)             | 1.41                                                                              |
| Turbidity (NTU)                  | 49.9                                                                              |
| Dissolved Oxygen (mg/L)          | 0.53                                                                              |
| Temperature (Degrees Celsius)    | 19.7                                                                              |
| Redox (ORP mV)                   | -92.7                                                                             |
| parameters                       | @10:45, DTW:66.95, pH:6.88, temp:19.7, cond:1.41, turb:49.9, DO:0.53, redox:-92.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:50, DTW:66.95, pH:6.89, temp:19, cond:1.38, turb:41.9, DO:0.33, redox:-96.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 66.95 |



|                               |       |
|-------------------------------|-------|
| pH                            | 6.89  |
| Conductivity (mS/cm)          | 1.38  |
| Turbidity (NTU)               | 41.9  |
| Dissolved Oxygen (mg/L)       | 0.33  |
| Temperature (Degrees Celsius) | 19    |
| Redox (ORP mV)                | -96.2 |

parameters @10:50, DTW:66.95, pH:6.89, temp:19, cond:1.38, turb:41.9, DO:0.33, redox:-96.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:55, DTW:66.95, pH:6.9, temp:19.1, cond:1.38, turb:40, DO:0.28, redox:-97**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 66.95 |
| pH                               | 6.9   |
| Conductivity (mS/cm)             | 1.38  |
| Turbidity (NTU)                  | 40    |
| Dissolved Oxygen (mg/L)          | 0.28  |
| Temperature (Degrees Celsius)    | 19.1  |
| Redox (ORP mV)                   | -97   |

parameters @10:55, DTW:66.95, pH:6.9, temp:19.1, cond:1.38, turb:40, DO:0.28, redox:-97

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:00, DTW:66.95, pH:6.9, temp:19.2, cond:1.34, turb:38.6, DO:0.29, redox:-97.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 66.95 |
| pH                               | 6.9   |
| Conductivity (mS/cm)             | 1.34  |
| Turbidity (NTU)                  | 38.6  |
| Dissolved Oxygen (mg/L)          | 0.29  |
| Temperature (Degrees Celsius)    | 19.2  |
| Redox (ORP mV)                   | -97.7 |

parameters @11:00, DTW:66.95, pH:6.9, temp:19.2, cond:1.34, turb:38.6, DO:0.29, redox:-97.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:05, DTW:66.95, pH:6.9, temp:19.3, cond:1.34, turb:44.2, DO:0.25, redox:-98.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 66.95                                                                            |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.9                                                                              |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1.34                                                                             |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 44.2                                                                             |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.25                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 19.3                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -98.4                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @11:05, DTW:66.95, pH:6.9, temp:19.3, cond:1.34, turb:44.2, DO:0.25, redox:-98.4 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |

### **@11:10, DTW:66.95, pH:6.91, temp:19.3, cond:1.33, turb:62.5, DO:0.2, redox:-99**

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 11:10                                                                          |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                              |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 200                                                                            |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 66.95                                                                          |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.91                                                                           |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1.33                                                                           |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 62.5                                                                           |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.2                                                                            |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 19.3                                                                           |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -99                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @11:10, DTW:66.95, pH:6.91, temp:19.3, cond:1.33, turb:62.5, DO:0.2, redox:-99 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                |

### **@11:15, DTW:66.95, pH:6.91, temp:19.6, cond:1.33, turb:68.6, DO:0.19, redox:-100**

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 11:15                                                                            |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                                |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 200                                                                              |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 66.95                                                                            |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.91                                                                             |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1.33                                                                             |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 68.6                                                                             |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.19                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 19.6                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -100                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @11:15, DTW:66.95, pH:6.91, temp:19.6, cond:1.33, turb:68.6, DO:0.19, redox:-100 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |

### **@11:20, DTW:66.95, pH:6.92, temp:19.3, cond:1.4, turb:61.1, DO:0.17, redox:-99.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:20 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 66.95                                                                            |
| pH                            | 6.92                                                                             |
| Conductivity (mS/cm)          | 1.4                                                                              |
| Turbidity (NTU)               | 61.1                                                                             |
| Dissolved Oxygen (mg/L)       | 0.17                                                                             |
| Temperature (Degrees Celsius) | 19.3                                                                             |
| Redox (ORP mV)                | -99.7                                                                            |
| parameters                    | @11:20, DTW:66.95, pH:6.92, temp:19.3, cond:1.4, turb:61.1, DO:0.17, redox:-99.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:25, DTW:66.95, pH:6.92, temp:19.2, cond:1.41, turb:55.5, DO:0.18, redox:-99.7**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 66.95                                                                             |
| pH                               | 6.92                                                                              |
| Conductivity (mS/cm)             | 1.41                                                                              |
| Turbidity (NTU)                  | 55.5                                                                              |
| Dissolved Oxygen (mg/L)          | 0.18                                                                              |
| Temperature (Degrees Celsius)    | 19.2                                                                              |
| Redox (ORP mV)                   | -99.7                                                                             |
| parameters                       | @11:25, DTW:66.95, pH:6.92, temp:19.2, cond:1.41, turb:55.5, DO:0.18, redox:-99.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 11:25   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 2.5     |

### **Sample Information**

|               |              |
|---------------|--------------|
| Sample Time   | 11:25        |
| Color         | Cloudy brown |
| Notable odors | None         |

### **1,4-Dioxane**

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### **Well Information**

|                        |         |
|------------------------|---------|
| Well Location          | Plant 3 |
| Condition of Well      | Good    |
| Well Locked at Arrival | Yes     |

Well Locked at Departure

Yes

---

Signature

A handwritten signature in black ink, appearing to read "D. R.", is centered on the page.

Signed 2019-06-05 15:53:12 UTC

---

## 2019-06-05, MW-13-29, MW-13-29

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 14:13:15 EDT by Donald Richmond |
| Updated                                                                                           | 2019-06-05 15:28:15 EDT by Christine Gregg |
| Location                                                                                          | 42.74187279, -84.5878902                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-05                                 |
| Well Identification                                                                               | MW-13-29                                   |
| Well ID                                                                                           | MW-13-29                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | 75                                         |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 64.81         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder       |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                | 14:05         |

### @14:15, DTW:65.8, pH:6.62, temp:22.7, cond:2.54, turb:19, DO:0.49, redox:4

|                               |                                                                            |
|-------------------------------|----------------------------------------------------------------------------|
| Reading Time                  | 14:15                                                                      |
| Rate (mL/min)                 | 200                                                                        |
| Depth to Water (ft)           | 65.8                                                                       |
| pH                            | 6.62                                                                       |
| Conductivity (mS/cm)          | 2.54                                                                       |
| Turbidity (NTU)               | 19                                                                         |
| Dissolved Oxygen (mg/L)       | 0.49                                                                       |
| Temperature (Degrees Celsius) | 22.7                                                                       |
| Redox (ORP mV)                | 4                                                                          |
| parameters                    | @14:15, DTW:65.8, pH:6.62, temp:22.7, cond:2.54, turb:19, DO:0.49, redox:4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:20, DTW:65.8, pH:6.61, temp:22.1, cond:2.56, turb:14.3, DO:0.42, redox:-5.8

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 6.61  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 2.56                                                                            |
| Turbidity (NTU)               | 14.3                                                                            |
| Dissolved Oxygen (mg/L)       | 0.42                                                                            |
| Temperature (Degrees Celsius) | 22.1                                                                            |
| Redox (ORP mV)                | -5.8                                                                            |
| parameters                    | @14:20, DTW:65.8, pH:6.61, temp:22.1, cond:2.56, turb:14.3, DO:0.42, redox:-5.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:25, DTW:65.8, pH:6.59, temp:20.4, cond:2.64, turb:12.3, DO:0.35, redox:-15.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.8                                                                             |
| pH                               | 6.59                                                                             |
| Conductivity (mS/cm)             | 2.64                                                                             |
| Turbidity (NTU)                  | 12.3                                                                             |
| Dissolved Oxygen (mg/L)          | 0.35                                                                             |
| Temperature (Degrees Celsius)    | 20.4                                                                             |
| Redox (ORP mV)                   | -15.5                                                                            |
| parameters                       | @14:25, DTW:65.8, pH:6.59, temp:20.4, cond:2.64, turb:12.3, DO:0.35, redox:-15.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:25, DTW:65.8, pH:6.59, temp:22.6, cond:2.65, turb:10.1, DO:0.32, redox:-20.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:25                                                                            |
| Minutes Elapsed between readings | 1440                                                                             |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.8                                                                             |
| pH                               | 6.59                                                                             |
| Conductivity (mS/cm)             | 2.65                                                                             |
| Turbidity (NTU)                  | 10.1                                                                             |
| Dissolved Oxygen (mg/L)          | 0.32                                                                             |
| Temperature (Degrees Celsius)    | 22.6                                                                             |
| Redox (ORP mV)                   | -20.2                                                                            |
| parameters                       | @14:25, DTW:65.8, pH:6.59, temp:22.6, cond:2.65, turb:10.1, DO:0.32, redox:-20.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:30, DTW:65.8, pH:6.58, temp:19.4, cond:2.71, turb:9.13, DO:0.23, redox:-19.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:30 |
| Minutes Elapsed between readings | 4     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |

|                               |       |
|-------------------------------|-------|
| pH                            | 6.58  |
| Conductivity (mS/cm)          | 2.71  |
| Turbidity (NTU)               | 9.13  |
| Dissolved Oxygen (mg/L)       | 0.23  |
| Temperature (Degrees Celsius) | 19.4  |
| Redox (ORP mV)                | -19.9 |

parameters @14:30, DTW:65.8, pH:6.58, temp:19.4, cond:2.71, turb:9.13, DO:0.23, redox:-19.9

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:35, DTW:65.8, pH:6.58, temp:19.8, cond:2.69, turb:8.03, DO:0.19, redox:-20.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 6.58  |
| Conductivity (mS/cm)             | 2.69  |
| Turbidity (NTU)                  | 8.03  |
| Dissolved Oxygen (mg/L)          | 0.19  |
| Temperature (Degrees Celsius)    | 19.8  |
| Redox (ORP mV)                   | -20.7 |

parameters @14:35, DTW:65.8, pH:6.58, temp:19.8, cond:2.69, turb:8.03, DO:0.19, redox:-20.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:40, DTW:65.8, pH:6.59, temp:21.6, cond:2.73, turb:7.56, DO:0.19, redox:-23.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 6.59  |
| Conductivity (mS/cm)             | 2.73  |
| Turbidity (NTU)                  | 7.56  |
| Dissolved Oxygen (mg/L)          | 0.19  |
| Temperature (Degrees Celsius)    | 21.6  |
| Redox (ORP mV)                   | -23.7 |

parameters @14:40, DTW:65.8, pH:6.59, temp:21.6, cond:2.73, turb:7.56, DO:0.19, redox:-23.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 14:40   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 2       |

## Sample Information



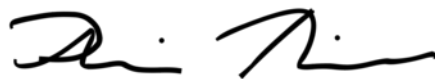
|               |       |
|---------------|-------|
| Sample Time   | 14:40 |
| Color         | Clear |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |     |
|--------------------------|-----|
| Well Locked at Arrival   | Yes |
| Well Locked at Departure | Yes |
| Signature                |     |



Signed 2019-06-05 18:40:52 UTC

## 2019-06-11, MW-13-31, MW-13-31

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-11 12:17:19 EDT by Gary Schafer    |
| Updated                                                                                           | 2019-06-11 16:25:15 EDT by Christine Gregg |
| Location                                                                                          | 42.7419098, -84.58295887                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Gary Schafer                               |
| Date                                                                                              | 2019-06-11                                 |
| Well Identification                                                                               | MW-13-31                                   |
| Well ID                                                                                           | MW-13-31                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Sunny temp 72                              |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 4.78          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 12.7          |
| Water Column                                                                                                                                                                                                                                              | 7.92          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.29          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 4.77          |
| Purge Start                                                                                                                                                                                                                                               | 12:18         |

### @12:20, DTW:61.9, pH:6.78, temp:13.6, cond:1.03, turb:18.6, DO:0.28, redox:46.9

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 12:20                                                                           |
| Rate (mL/min)                 | 150                                                                             |
| Depth to Water (ft)           | 61.9                                                                            |
| pH                            | 6.78                                                                            |
| Conductivity (mS/cm)          | 1.03                                                                            |
| Turbidity (NTU)               | 18.6                                                                            |
| Dissolved Oxygen (mg/L)       | 0.28                                                                            |
| Temperature (Degrees Celsius) | 13.6                                                                            |
| Redox (ORP mV)                | 46.9                                                                            |
| parameters                    | @12:20, DTW:61.9, pH:6.78, temp:13.6, cond:1.03, turb:18.6, DO:0.28, redox:46.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:25, DTW:61.9, pH:6.77, temp:14, cond:1.01, turb:3.4, DO:0.26, redox:61.5

|              |       |
|--------------|-------|
| Reading Time | 12:25 |
|--------------|-------|

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 150                                                                          |
| Depth to Water (ft)              | 61.9                                                                         |
| pH                               | 6.77                                                                         |
| Conductivity (mS/cm)             | 1.01                                                                         |
| Turbidity (NTU)                  | 3.4                                                                          |
| Dissolved Oxygen (mg/L)          | 0.26                                                                         |
| Temperature (Degrees Celsius)    | 14                                                                           |
| Redox (ORP mV)                   | 61.5                                                                         |
| parameters                       | @12:25, DTW:61.9, pH:6.77, temp:14, cond:1.01, turb:3.4, DO:0.26, redox:61.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:30, DTW:4.77, pH:6.77, temp:13.8, cond:1.01, turb:1.08, DO:0.27, redox:64.6**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 4.77                                                                            |
| pH                               | 6.77                                                                            |
| Conductivity (mS/cm)             | 1.01                                                                            |
| Turbidity (NTU)                  | 1.08                                                                            |
| Dissolved Oxygen (mg/L)          | 0.27                                                                            |
| Temperature (Degrees Celsius)    | 13.8                                                                            |
| Redox (ORP mV)                   | 64.6                                                                            |
| parameters                       | @12:30, DTW:4.77, pH:6.77, temp:13.8, cond:1.01, turb:1.08, DO:0.27, redox:64.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:35, DTW:4.77, pH:6.77, temp:13.9, cond:1, turb:0.78, DO:0.25, redox:66.3**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 150                                                                          |
| Depth to Water (ft)              | 4.77                                                                         |
| pH                               | 6.77                                                                         |
| Conductivity (mS/cm)             | 1                                                                            |
| Turbidity (NTU)                  | 0.78                                                                         |
| Dissolved Oxygen (mg/L)          | 0.25                                                                         |
| Temperature (Degrees Celsius)    | 13.9                                                                         |
| Redox (ORP mV)                   | 66.3                                                                         |
| parameters                       | @12:35, DTW:4.77, pH:6.77, temp:13.9, cond:1, turb:0.78, DO:0.25, redox:66.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:40, DTW:4.77, pH:6.77, temp:13.8, cond:1, turb:0.06, DO:0.21, redox:67**

|                                  |                                                                            |
|----------------------------------|----------------------------------------------------------------------------|
| Reading Time                     | 12:40                                                                      |
| Minutes Elapsed between readings | 5                                                                          |
| Rate (mL/min)                    | 150                                                                        |
| Depth to Water (ft)              | 4.77                                                                       |
| pH                               | 6.77                                                                       |
| Conductivity (mS/cm)             | 1                                                                          |
| Turbidity (NTU)                  | 0.06                                                                       |
| Dissolved Oxygen (mg/L)          | 0.21                                                                       |
| Temperature (Degrees Celsius)    | 13.8                                                                       |
| Redox (ORP mV)                   | 67                                                                         |
| parameters                       | @12:40, DTW:4.77, pH:6.77, temp:13.8, cond:1, turb:0.06, DO:0.21, redox:67 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:45, DTW:4.77, pH:6.75, temp:13.8, cond:1, turb:0.07, DO:0.25, redox:68.3**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 12:45                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 150                                                                          |
| Depth to Water (ft)              | 4.77                                                                         |
| pH                               | 6.75                                                                         |
| Conductivity (mS/cm)             | 1                                                                            |
| Turbidity (NTU)                  | 0.07                                                                         |
| Dissolved Oxygen (mg/L)          | 0.25                                                                         |
| Temperature (Degrees Celsius)    | 13.8                                                                         |
| Redox (ORP mV)                   | 68.3                                                                         |
| parameters                       | @12:45, DTW:4.77, pH:6.75, temp:13.8, cond:1, turb:0.07, DO:0.25, redox:68.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:47, DTW:4.77, pH:6.77, temp:13.8, cond:1, turb:0.05, DO:0.27, redox:68**

|                                  |                                                                            |
|----------------------------------|----------------------------------------------------------------------------|
| Reading Time                     | 12:47                                                                      |
| Minutes Elapsed between readings | 2                                                                          |
| Rate (mL/min)                    | 150                                                                        |
| Depth to Water (ft)              | 4.77                                                                       |
| pH                               | 6.77                                                                       |
| Conductivity (mS/cm)             | 1                                                                          |
| Turbidity (NTU)                  | 0.05                                                                       |
| Dissolved Oxygen (mg/L)          | 0.27                                                                       |
| Temperature (Degrees Celsius)    | 13.8                                                                       |
| Redox (ORP mV)                   | 68                                                                         |
| parameters                       | @12:47, DTW:4.77, pH:6.77, temp:13.8, cond:1, turb:0.05, DO:0.27, redox:68 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit



## 2019-06-11, MW-13-32, MW-13-32

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-11 13:23:12 EDT by Gary Schafer    |
| Updated                                                                                           | 2019-06-11 16:26:23 EDT by Christine Gregg |
| Location                                                                                          | 42.74192015, -84.58269719                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Gary Schafer                               |
| Date                                                                                              | 2019-06-11                                 |
| Well Identification                                                                               | MW-13-32                                   |
| Well ID                                                                                           | MW-13-32                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Sunny temp 73                              |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 3.85          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 12.6          |
| Water Column                                                                                                                                                                                                                                              | 8.75          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.42          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 3.62          |
| Purge Start                                                                                                                                                                                                                                               | 13:24         |

### @13:25, DTW:4.77, pH:6.78, temp:13.5, cond:1.54, turb:66, DO:0.58, redox:122.3

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 13:25                                                                          |
| Rate (mL/min)                 | 150                                                                            |
| Depth to Water (ft)           | 4.77                                                                           |
| pH                            | 6.78                                                                           |
| Conductivity (mS/cm)          | 1.54                                                                           |
| Turbidity (NTU)               | 66                                                                             |
| Dissolved Oxygen (mg/L)       | 0.58                                                                           |
| Temperature (Degrees Celsius) | 13.5                                                                           |
| Redox (ORP mV)                | 122.3                                                                          |
| parameters                    | @13:25, DTW:4.77, pH:6.78, temp:13.5, cond:1.54, turb:66, DO:0.58, redox:122.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:30, DTW:4.77, pH:6.79, temp:13.6, cond:1.52, turb:49.7, DO:0.31, redox:106.5

|              |       |
|--------------|-------|
| Reading Time | 13:30 |
|--------------|-------|

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 4.77                                                                             |
| pH                               | 6.79                                                                             |
| Conductivity (mS/cm)             | 1.52                                                                             |
| Turbidity (NTU)                  | 49.7                                                                             |
| Dissolved Oxygen (mg/L)          | 0.31                                                                             |
| Temperature (Degrees Celsius)    | 13.6                                                                             |
| Redox (ORP mV)                   | 106.5                                                                            |
| parameters                       | @13:30, DTW:4.77, pH:6.79, temp:13.6, cond:1.52, turb:49.7, DO:0.31, redox:106.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:35, DTW:4.77, pH:6.83, temp:14, cond:1.48, turb:57.8, DO:0.35, redox:110.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 150                                                                            |
| Depth to Water (ft)              | 4.77                                                                           |
| pH                               | 6.83                                                                           |
| Conductivity (mS/cm)             | 1.48                                                                           |
| Turbidity (NTU)                  | 57.8                                                                           |
| Dissolved Oxygen (mg/L)          | 0.35                                                                           |
| Temperature (Degrees Celsius)    | 14                                                                             |
| Redox (ORP mV)                   | 110.1                                                                          |
| parameters                       | @13:35, DTW:4.77, pH:6.83, temp:14, cond:1.48, turb:57.8, DO:0.35, redox:110.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:3.87, pH:6.92, temp:14.1, cond:1.33, turb:16.8, DO:0.44, redox:116**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 150                                                                            |
| Depth to Water (ft)              | 3.87                                                                           |
| pH                               | 6.92                                                                           |
| Conductivity (mS/cm)             | 1.33                                                                           |
| Turbidity (NTU)                  | 16.8                                                                           |
| Dissolved Oxygen (mg/L)          | 0.44                                                                           |
| Temperature (Degrees Celsius)    | 14.1                                                                           |
| Redox (ORP mV)                   | 116                                                                            |
| parameters                       | @13:40, DTW:3.87, pH:6.92, temp:14.1, cond:1.33, turb:16.8, DO:0.44, redox:116 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:45, DTW:3.87, pH:6.93, temp:13.5, cond:1.23, turb:10.5, DO:0.45, redox:122.6**



|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 3.87                                                                             |
| pH                               | 6.93                                                                             |
| Conductivity (mS/cm)             | 1.23                                                                             |
| Turbidity (NTU)                  | 10.5                                                                             |
| Dissolved Oxygen (mg/L)          | 0.45                                                                             |
| Temperature (Degrees Celsius)    | 13.5                                                                             |
| Redox (ORP mV)                   | 122.6                                                                            |
| parameters                       | @13:45, DTW:3.87, pH:6.93, temp:13.5, cond:1.23, turb:10.5, DO:0.45, redox:122.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:50, DTW:3.87, pH:6.97, temp:14.2, cond:1.09, turb:3.11, DO:0.48, redox:126.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:50                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 3.87                                                                             |
| pH                               | 6.97                                                                             |
| Conductivity (mS/cm)             | 1.09                                                                             |
| Turbidity (NTU)                  | 3.11                                                                             |
| Dissolved Oxygen (mg/L)          | 0.48                                                                             |
| Temperature (Degrees Celsius)    | 14.2                                                                             |
| Redox (ORP mV)                   | 126.6                                                                            |
| parameters                       | @13:50, DTW:3.87, pH:6.97, temp:14.2, cond:1.09, turb:3.11, DO:0.48, redox:126.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:55, DTW:3.87, pH:6.98, temp:13.8, cond:1.02, turb:1.3, DO:0.53, redox:130.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:55                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 3.87                                                                            |
| pH                               | 6.98                                                                            |
| Conductivity (mS/cm)             | 1.02                                                                            |
| Turbidity (NTU)                  | 1.3                                                                             |
| Dissolved Oxygen (mg/L)          | 0.53                                                                            |
| Temperature (Degrees Celsius)    | 13.8                                                                            |
| Redox (ORP mV)                   | 130.2                                                                           |
| parameters                       | @13:55, DTW:3.87, pH:6.98, temp:13.8, cond:1.02, turb:1.3, DO:0.53, redox:130.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:00, DTW:3.87, pH:6.98, temp:14, cond:0.92, turb:0.49, DO:0.55, redox:132.8**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:00                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 150                                                                            |
| Depth to Water (ft)              | 3.87                                                                           |
| pH                               | 6.98                                                                           |
| Conductivity (mS/cm)             | 0.92                                                                           |
| Turbidity (NTU)                  | 0.49                                                                           |
| Dissolved Oxygen (mg/L)          | 0.55                                                                           |
| Temperature (Degrees Celsius)    | 14                                                                             |
| Redox (ORP mV)                   | 132.8                                                                          |
| parameters                       | @14:00, DTW:3.87, pH:6.98, temp:14, cond:0.92, turb:0.49, DO:0.55, redox:132.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:05, DTW:3.87, pH:6.97, temp:14.1, cond:0.88, turb:0.42, DO:0.55, redox:135.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:05                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 3.87                                                                             |
| pH                               | 6.97                                                                             |
| Conductivity (mS/cm)             | 0.88                                                                             |
| Turbidity (NTU)                  | 0.42                                                                             |
| Dissolved Oxygen (mg/L)          | 0.55                                                                             |
| Temperature (Degrees Celsius)    | 14.1                                                                             |
| Redox (ORP mV)                   | 135.6                                                                            |
| parameters                       | @14:05, DTW:3.87, pH:6.97, temp:14.1, cond:0.88, turb:0.42, DO:0.55, redox:135.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 14:08   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 2.5     |
| Well Volumes Purged           | 1.76    |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:08 |
| Color         | Clear |
| Notable odors | None  |

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW-13-32 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature

Gary Schatz

Signed 2019-06-11 18:17:52 UTC

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## 2019-06-07, MW-13-34, MW-13-34

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-07 11:06:20 EDT by Donald Richmond |
| Updated                                                                                           | 2019-06-07 12:00:07 EDT by Christine Gregg |
| Location                                                                                          | 42.7413358, -84.58709593                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-07                                 |
| Well Identification                                                                               | MW-13-34                                   |
| Well ID                                                                                           | MW-13-34                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Sunny/75 degrees                           |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 61.97         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder       |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                | 11:00         |

### @11:05, DTW:65.8, pH:7.61, temp:24, cond:1.79, turb:50.6, DO:2.12, redox:-95

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Reading Time                  | 11:05                                                                        |
| Rate (mL/min)                 | 200                                                                          |
| Depth to Water (ft)           | 65.8                                                                         |
| pH                            | 7.61                                                                         |
| Conductivity (mS/cm)          | 1.79                                                                         |
| Turbidity (NTU)               | 50.6                                                                         |
| Dissolved Oxygen (mg/L)       | 2.12                                                                         |
| Temperature (Degrees Celsius) | 24                                                                           |
| Redox (ORP mV)                | -95                                                                          |
| parameters                    | @11:05, DTW:65.8, pH:7.61, temp:24, cond:1.79, turb:50.6, DO:2.12, redox:-95 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:10, DTW:65.8, pH:7.7, temp:24.2, cond:1.76, turb:31.3, DO:2.11, redox:-63

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 7.7   |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.76                                                                          |
| Turbidity (NTU)               | 31.3                                                                          |
| Dissolved Oxygen (mg/L)       | 2.11                                                                          |
| Temperature (Degrees Celsius) | 24.2                                                                          |
| Redox (ORP mV)                | -63                                                                           |
| parameters                    | @11:10, DTW:65.8, pH:7.7, temp:24.2, cond:1.76, turb:31.3, DO:2.11, redox:-63 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@11:15, DTW:65.8, pH:7.72, temp:23.9, cond:1.75, turb:35.2, DO:2.12, redox:-44**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:15                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 65.8                                                                           |
| pH                               | 7.72                                                                           |
| Conductivity (mS/cm)             | 1.75                                                                           |
| Turbidity (NTU)                  | 35.2                                                                           |
| Dissolved Oxygen (mg/L)          | 2.12                                                                           |
| Temperature (Degrees Celsius)    | 23.9                                                                           |
| Redox (ORP mV)                   | -44                                                                            |
| parameters                       | @11:15, DTW:65.8, pH:7.72, temp:23.9, cond:1.75, turb:35.2, DO:2.12, redox:-44 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@11:20, DTW:65.8, pH:7.71, temp:23.6, cond:1.75, turb:40, DO:1.99, redox:-36**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 11:20                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 65.8                                                                         |
| pH                               | 7.71                                                                         |
| Conductivity (mS/cm)             | 1.75                                                                         |
| Turbidity (NTU)                  | 40                                                                           |
| Dissolved Oxygen (mg/L)          | 1.99                                                                         |
| Temperature (Degrees Celsius)    | 23.6                                                                         |
| Redox (ORP mV)                   | -36                                                                          |
| parameters                       | @11:20, DTW:65.8, pH:7.71, temp:23.6, cond:1.75, turb:40, DO:1.99, redox:-36 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@11:25, DTW:65.8, pH:7.61, temp:23.4, cond:1.75, turb:74.4, DO:1.41, redox:-77.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |

|                               |       |
|-------------------------------|-------|
| pH                            | 7.61  |
| Conductivity (mS/cm)          | 1.75  |
| Turbidity (NTU)               | 74.4  |
| Dissolved Oxygen (mg/L)       | 1.41  |
| Temperature (Degrees Celsius) | 23.4  |
| Redox (ORP mV)                | -77.6 |

parameters @11:25, DTW:65.8, pH:7.61, temp:23.4, cond:1.75, turb:74.4, DO:1.41, redox:-77.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:30, DTW:65.8, pH:7.14, temp:23.9, cond:1.89, turb:204, DO:0.6, redox:-125.5**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 11:30  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 200    |
| Depth to Water (ft)              | 65.8   |
| pH                               | 7.14   |
| Conductivity (mS/cm)             | 1.89   |
| Turbidity (NTU)                  | 204    |
| Dissolved Oxygen (mg/L)          | 0.6    |
| Temperature (Degrees Celsius)    | 23.9   |
| Redox (ORP mV)                   | -125.5 |

parameters @11:30, DTW:65.8, pH:7.14, temp:23.9, cond:1.89, turb:204, DO:0.6, redox:-125.5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:35, DTW:65.8, pH:6.94, temp:24.3, cond:2.09, turb:184, DO:0.26, redox:-85**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 6.94  |
| Conductivity (mS/cm)             | 2.09  |
| Turbidity (NTU)                  | 184   |
| Dissolved Oxygen (mg/L)          | 0.26  |
| Temperature (Degrees Celsius)    | 24.3  |
| Redox (ORP mV)                   | -85   |

parameters @11:35, DTW:65.8, pH:6.94, temp:24.3, cond:2.09, turb:184, DO:0.26, redox:-85

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:40, DTW:65.8, pH:6.94, temp:24.3, cond:2.1, turb:166, DO:0.21, redox:-72**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Depth to Water (ft)           | 65.8                                                                         |
| pH                            | 6.94                                                                         |
| Conductivity (mS/cm)          | 2.1                                                                          |
| Turbidity (NTU)               | 166                                                                          |
| Dissolved Oxygen (mg/L)       | 0.21                                                                         |
| Temperature (Degrees Celsius) | 24.3                                                                         |
| Redox (ORP mV)                | -72                                                                          |
| parameters                    | @11:40, DTW:65.8, pH:6.94, temp:24.3, cond:2.1, turb:166, DO:0.21, redox:-72 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:45, DTW:65.8, pH:6.93, temp:24.2, cond:2.13, turb:155, DO:0.2, redox:-62**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 11:45                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 65.8                                                                         |
| pH                               | 6.93                                                                         |
| Conductivity (mS/cm)             | 2.13                                                                         |
| Turbidity (NTU)                  | 155                                                                          |
| Dissolved Oxygen (mg/L)          | 0.2                                                                          |
| Temperature (Degrees Celsius)    | 24.2                                                                         |
| Redox (ORP mV)                   | -62                                                                          |
| parameters                       | @11:45, DTW:65.8, pH:6.93, temp:24.2, cond:2.13, turb:155, DO:0.2, redox:-62 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:50, DTW:65.8, pH:6.92, temp:24.4, cond:2.14, turb:128, DO:0.2, redox:-52.3**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:50                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 65.8                                                                           |
| pH                               | 6.92                                                                           |
| Conductivity (mS/cm)             | 2.14                                                                           |
| Turbidity (NTU)                  | 128                                                                            |
| Dissolved Oxygen (mg/L)          | 0.2                                                                            |
| Temperature (Degrees Celsius)    | 24.4                                                                           |
| Redox (ORP mV)                   | -52.3                                                                          |
| parameters                       | @11:50, DTW:65.8, pH:6.92, temp:24.4, cond:2.14, turb:128, DO:0.2, redox:-52.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:55, DTW:65.8, pH:6.91, temp:24.9, cond:2.16, turb:127, DO:0.18, redox:-40.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:55 |
| Minutes Elapsed between readings | 5     |



|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 65.8                                                                            |
| pH                            | 6.91                                                                            |
| Conductivity (mS/cm)          | 2.16                                                                            |
| Turbidity (NTU)               | 127                                                                             |
| Dissolved Oxygen (mg/L)       | 0.18                                                                            |
| Temperature (Degrees Celsius) | 24.9                                                                            |
| Redox (ORP mV)                | -40.7                                                                           |
| parameters                    | @11:55, DTW:65.8, pH:6.91, temp:24.9, cond:2.16, turb:127, DO:0.18, redox:-40.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:00, DTW:65.8, pH:6.9, temp:24.9, cond:2.19, turb:122, DO:0.15, redox:-49

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 12:00                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 65.8                                                                         |
| pH                               | 6.9                                                                          |
| Conductivity (mS/cm)             | 2.19                                                                         |
| Turbidity (NTU)                  | 122                                                                          |
| Dissolved Oxygen (mg/L)          | 0.15                                                                         |
| Temperature (Degrees Celsius)    | 24.9                                                                         |
| Redox (ORP mV)                   | -49                                                                          |
| parameters                       | @12:00, DTW:65.8, pH:6.9, temp:24.9, cond:2.19, turb:122, DO:0.15, redox:-49 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 12:00 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:00 |
| Color         | None  |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |
| Signature                |         |



Signed 2019-06-07 15:19:19 UTC

## 2019-08-29, MW-13-34, MW-13-34

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-08-29 12:57:57 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-08-29 13:34:48 EDT by Christine Gregg |
| Location                                                                                          | 42.74131124, -84.58707246                  |
| Project Number                                                                                    | 30006870.1234                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-08-29                                 |
| Well Identification                                                                               | MW-13-34                                   |
| Well ID                                                                                           | MW-13-34                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Partly Cloudy, Breezy, 70's                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 61.23         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 79.85         |
| Water Column                                                                                                                                                                                                                                              | 18.62         |
| Gallons in Well                                                                                                                                                                                                                                           | 3.03          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 77            |
| Purge Start                                                                                                                                                                                                                                               | 12:45         |

### @12:45, DTW:61.23, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 12:45                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 61.23                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @12:45, DTW:61.23, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:50, DTW:61.75, pH:6.92, temp:19.9, cond:1.82, turb:157, DO:1.74, redox:-11.2

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.75 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.92  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.82                                                                             |
| Turbidity (NTU)               | 157                                                                              |
| Dissolved Oxygen (mg/L)       | 1.74                                                                             |
| Temperature (Degrees Celsius) | 19.9                                                                             |
| Redox (ORP mV)                | -11.2                                                                            |
| parameters                    | @12:50, DTW:61.75, pH:6.92, temp:19.9, cond:1.82, turb:157, DO:1.74, redox:-11.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:55, DTW:61.72, pH:6.88, temp:21.4, cond:1.77, turb:256, DO:1.93, redox:-40.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 61.72                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 6.88                                                                             |
| Conductivity (mS/cm)             | 1.77                                                                             |
| Turbidity (NTU)                  | 256                                                                              |
| Dissolved Oxygen (mg/L)          | 1.93                                                                             |
| Temperature (Degrees Celsius)    | 21.4                                                                             |
| Redox (ORP mV)                   | -40.6                                                                            |
| parameters                       | @12:55, DTW:61.72, pH:6.88, temp:21.4, cond:1.77, turb:256, DO:1.93, redox:-40.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:00, DTW:61.7, pH:6.98, temp:22.8, cond:1.9, turb:292, DO:1.59, redox:-63.8**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:00                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 61.7                                                                           |
| Milliliters Purged (total)       | 1500                                                                           |
| pH                               | 6.98                                                                           |
| Conductivity (mS/cm)             | 1.9                                                                            |
| Turbidity (NTU)                  | 292                                                                            |
| Dissolved Oxygen (mg/L)          | 1.59                                                                           |
| Temperature (Degrees Celsius)    | 22.8                                                                           |
| Redox (ORP mV)                   | -63.8                                                                          |
| parameters                       | @13:00, DTW:61.7, pH:6.98, temp:22.8, cond:1.9, turb:292, DO:1.59, redox:-63.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:05, DTW:61.61, pH:6.95, temp:23, cond:1.95, turb:307, DO:1.51, redox:-68.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:05 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                            |
| Depth to Water (ft)           | 61.61                                                                          |
| Milliliters Purged (total)    | 2000                                                                           |
| pH                            | 6.95                                                                           |
| Conductivity (mS/cm)          | 1.95                                                                           |
| Turbidity (NTU)               | 307                                                                            |
| Dissolved Oxygen (mg/L)       | 1.51                                                                           |
| Temperature (Degrees Celsius) | 23                                                                             |
| Redox (ORP mV)                | -68.1                                                                          |
| parameters                    | @13:05, DTW:61.61, pH:6.95, temp:23, cond:1.95, turb:307, DO:1.51, redox:-68.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:10, DTW:61.53, pH:6.93, temp:23.2, cond:1.99, turb:357, DO:1.54, redox:-71.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 61.53                                                                            |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 6.93                                                                             |
| Conductivity (mS/cm)             | 1.99                                                                             |
| Turbidity (NTU)                  | 357                                                                              |
| Dissolved Oxygen (mg/L)          | 1.54                                                                             |
| Temperature (Degrees Celsius)    | 23.2                                                                             |
| Redox (ORP mV)                   | -71.3                                                                            |
| parameters                       | @13:10, DTW:61.53, pH:6.93, temp:23.2, cond:1.99, turb:357, DO:1.54, redox:-71.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:15, DTW:61.51, pH:6.96, temp:28.2, cond:2.06, turb:291, DO:0.46, redox:-96.9**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 61.51                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 6.96                                                                             |
| Conductivity (mS/cm)             | 2.06                                                                             |
| Turbidity (NTU)                  | 291                                                                              |
| Dissolved Oxygen (mg/L)          | 0.46                                                                             |
| Temperature (Degrees Celsius)    | 28.2                                                                             |
| Redox (ORP mV)                   | -96.9                                                                            |
| parameters                       | @13:15, DTW:61.51, pH:6.96, temp:28.2, cond:2.06, turb:291, DO:0.46, redox:-96.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:20, DTW:61.51, pH:6.95, temp:28.4, cond:2.08, turb:224, DO:0.39, redox:-100.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 61.51                                                                             |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 6.95                                                                              |
| Conductivity (mS/cm)             | 2.08                                                                              |
| Turbidity (NTU)                  | 224                                                                               |
| Dissolved Oxygen (mg/L)          | 0.39                                                                              |
| Temperature (Degrees Celsius)    | 28.4                                                                              |
| Redox (ORP mV)                   | -100.2                                                                            |
| parameters                       | @13:20, DTW:61.51, pH:6.95, temp:28.4, cond:2.08, turb:224, DO:0.39, redox:-100.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:25, DTW:61.51, pH:6.95, temp:28, cond:2.1, turb:205, DO:0.37, redox:-101.2**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:25                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 61.51                                                                          |
| Milliliters Purged (total)       | 4000                                                                           |
| pH                               | 6.95                                                                           |
| Conductivity (mS/cm)             | 2.1                                                                            |
| Turbidity (NTU)                  | 205                                                                            |
| Dissolved Oxygen (mg/L)          | 0.37                                                                           |
| Temperature (Degrees Celsius)    | 28                                                                             |
| Redox (ORP mV)                   | -101.2                                                                         |
| parameters                       | @13:25, DTW:61.51, pH:6.95, temp:28, cond:2.1, turb:205, DO:0.37, redox:-101.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:30, DTW:61.51, pH:6.95, temp:27.4, cond:2.11, turb:192, DO:0.38, redox:-101.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.51 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.95  |
| Conductivity (mS/cm)             | 2.11  |
| Turbidity (NTU)                  | 192   |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.38                                                                              |
| Temperature (Degrees Celsius) | 27.4                                                                              |
| Redox (ORP mV)                | -101.3                                                                            |
| parameters                    | @13:30, DTW:61.51, pH:6.95, temp:27.4, cond:2.11, turb:192, DO:0.38, redox:-101.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:35, DTW:61.51, pH:6.94, temp:27, cond:2.12, turb:193, DO:0.36, redox:-100.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 61.51                                                                           |
| Milliliters Purged (total)       | 5000                                                                            |
| pH                               | 6.94                                                                            |
| Conductivity (mS/cm)             | 2.12                                                                            |
| Turbidity (NTU)                  | 193                                                                             |
| Dissolved Oxygen (mg/L)          | 0.36                                                                            |
| Temperature (Degrees Celsius)    | 27                                                                              |
| Redox (ORP mV)                   | -100.9                                                                          |
| parameters                       | @13:35, DTW:61.51, pH:6.94, temp:27, cond:2.12, turb:193, DO:0.36, redox:-100.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:61.51, pH:6.93, temp:26.7, cond:2.12, turb:189, DO:0.37, redox:-100**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 61.51                                                                           |
| Milliliters Purged (total)       | 5500                                                                            |
| pH                               | 6.93                                                                            |
| Conductivity (mS/cm)             | 2.12                                                                            |
| Turbidity (NTU)                  | 189                                                                             |
| Dissolved Oxygen (mg/L)          | 0.37                                                                            |
| Temperature (Degrees Celsius)    | 26.7                                                                            |
| Redox (ORP mV)                   | -100                                                                            |
| parameters                       | @13:40, DTW:61.51, pH:6.93, temp:26.7, cond:2.12, turb:189, DO:0.37, redox:-100 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:45, DTW:61.51, pH:6.91, temp:26.3, cond:2.12, turb:193, DO:0.39, redox:-99.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.51 |



|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Milliliters Purged (total)                                                                                                                                                                                                                                                                                                                       | 6000                                                                             |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.91                                                                             |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 2.12                                                                             |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 193                                                                              |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.39                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 26.3                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -99.2                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @13:45, DTW:61.51, pH:6.91, temp:26.3, cond:2.12, turb:193, DO:0.39, redox:-99.2 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 13:45                                                                            |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                      |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6000                                                                             |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.52                                                                             |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:45 |
| Color         | Clear |
| Notable odors | No    |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Photo of Well



Comments

Turbidity didn't stabilize below 10 ntu

Signature

3uey/h

Signed 2019-08-29 17:00:12 UTC

## 2019-12-05, MW-13-34

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-05 20:59:44 UTC by Billy Cobern |
| Updated                                                                                           | 2019-12-05 21:11:36 UTC by Billy Cobern |
| Location                                                                                          | 42.7413284266766, -84.5870614797665     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-12-05                              |
| Well ID                                                                                           | MW-13-34                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Cloudy 30's                             |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 59.59         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 79.85         |
| Water Column                                                                                                                                                                                                                                                 | 20.26         |
| Gallons in Well                                                                                                                                                                                                                                              | 3.29          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 57            |
| Purge Start                                                                                                                                                                                                                                                  | 15:55         |

### @15:55, DTW:59.59, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 15:55                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 59.59                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @15:55, DTW:59.59, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @16:00, DTW:59.89, pH:7.24, temp:10.6, cond:1.84, turb:23.5, DO:1.32, redox:-85.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 16:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 59.89 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.24  |
| Conductivity (mS/cm)             | 1.84  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Turbidity (NTU)               | 23.5                                                                              |
| Dissolved Oxygen (mg/L)       | 1.32                                                                              |
| Temperature (Degrees Celsius) | 10.6                                                                              |
| Redox (ORP mV)                | -85.1                                                                             |
| parameters                    | @16:00, DTW:59.89, pH:7.24, temp:10.6, cond:1.84, turb:23.5, DO:1.32, redox:-85.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:05, DTW:59.87, pH:7.24, temp:10.2, cond:1.83, turb:10.4, DO:1.52, redox:-85.8**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 16:05                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 59.87                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 7.24                                                                              |
| Conductivity (mS/cm)             | 1.83                                                                              |
| Turbidity (NTU)                  | 10.4                                                                              |
| Dissolved Oxygen (mg/L)          | 1.52                                                                              |
| Temperature (Degrees Celsius)    | 10.2                                                                              |
| Redox (ORP mV)                   | -85.8                                                                             |
| parameters                       | @16:05, DTW:59.87, pH:7.24, temp:10.2, cond:1.83, turb:10.4, DO:1.52, redox:-85.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:10, DTW:59.87, pH:7.24, temp:10, cond:1.83, turb:7.89, DO:1.47, redox:-86.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 16:10                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 59.87                                                                           |
| Milliliters Purged (total)       | 1500                                                                            |
| pH                               | 7.24                                                                            |
| Conductivity (mS/cm)             | 1.83                                                                            |
| Turbidity (NTU)                  | 7.89                                                                            |
| Dissolved Oxygen (mg/L)          | 1.47                                                                            |
| Temperature (Degrees Celsius)    | 10                                                                              |
| Redox (ORP mV)                   | -86.3                                                                           |
| parameters                       | @16:10, DTW:59.87, pH:7.24, temp:10, cond:1.83, turb:7.89, DO:1.47, redox:-86.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:15, DTW:59.87, pH:7.24, temp:9.9, cond:1.84, turb:7.32, DO:1.48, redox:-86.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 16:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Depth to Water (ft)           | 59.87                                                                            |
| Milliliters Purged (total)    | 2000                                                                             |
| pH                            | 7.24                                                                             |
| Conductivity (mS/cm)          | 1.84                                                                             |
| Turbidity (NTU)               | 7.32                                                                             |
| Dissolved Oxygen (mg/L)       | 1.48                                                                             |
| Temperature (Degrees Celsius) | 9.9                                                                              |
| Redox (ORP mV)                | -86.2                                                                            |
| parameters                    | @16:15, DTW:59.87, pH:7.24, temp:9.9, cond:1.84, turb:7.32, DO:1.48, redox:-86.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:20, DTW:59.87, pH:7.24, temp:9.7, cond:1.84, turb:7.43, DO:1.42, redox:-86.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 16:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 59.87                                                                            |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 7.24                                                                             |
| Conductivity (mS/cm)             | 1.84                                                                             |
| Turbidity (NTU)                  | 7.43                                                                             |
| Dissolved Oxygen (mg/L)          | 1.42                                                                             |
| Temperature (Degrees Celsius)    | 9.7                                                                              |
| Redox (ORP mV)                   | -86.6                                                                            |
| parameters                       | @16:20, DTW:59.87, pH:7.24, temp:9.7, cond:1.84, turb:7.43, DO:1.42, redox:-86.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 16:20       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 2500        |
| Well Volumes Purged           | 0.2         |

### **Sample Information**

|               |       |
|---------------|-------|
| Sample Time   | 16:20 |
| Color         | Clear |
| Notable odors | No    |

### **1,4-Dioxane**

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### **Well Information**

|               |         |
|---------------|---------|
| Well Location | Plant 3 |
|---------------|---------|

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |
| Signature                |      |

A handwritten signature in black ink, appearing to be 'Zun' followed by a stylized flourish.

Signed 2019-12-05 21:01:41 UTC

## 2019-06-10, MW-13-35, MW-13-35

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 14:57:14 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-10 15:06:31 EDT by Christine Gregg |
| Location                                                                                          | 42.73372705, -84.58163478                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-10                                 |
| Well Identification                                                                               | MW-13-35                                   |
| Well ID                                                                                           | MW-13-35                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Mostly Cloudy Windy, 60's                  |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 23.15         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 29.45         |
| Water Column                                                                                                                                                                                                                                              | 6.3           |
| Gallons in Well                                                                                                                                                                                                                                           | 1.02          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 27            |
| Purge Start                                                                                                                                                                                                                                               | 14:45         |

### @14:45, DTW:23.15, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 14:45                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 23.15                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @14:45, DTW:23.15, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:50, DTW:23.2, pH:6.98, temp:14.2, cond:2.23, turb:24.6, DO:0.63, redox:-79.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 23.2  |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.98  |



|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 2.23                                                                             |
| Turbidity (NTU)               | 24.6                                                                             |
| Dissolved Oxygen (mg/L)       | 0.63                                                                             |
| Temperature (Degrees Celsius) | 14.2                                                                             |
| Redox (ORP mV)                | -79.7                                                                            |
| parameters                    | @14:50, DTW:23.2, pH:6.98, temp:14.2, cond:2.23, turb:24.6, DO:0.63, redox:-79.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:55, DTW:23.2, pH:6.97, temp:14.9, cond:2.23, turb:16.8, DO:0.4, redox:-79.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:55                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 23.2                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 6.97                                                                            |
| Conductivity (mS/cm)             | 2.23                                                                            |
| Turbidity (NTU)                  | 16.8                                                                            |
| Dissolved Oxygen (mg/L)          | 0.4                                                                             |
| Temperature (Degrees Celsius)    | 14.9                                                                            |
| Redox (ORP mV)                   | -79.1                                                                           |
| parameters                       | @14:55, DTW:23.2, pH:6.97, temp:14.9, cond:2.23, turb:16.8, DO:0.4, redox:-79.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:00, DTW:23.2, pH:6.97, temp:14, cond:2.23, turb:11.6, DO:0.36, redox:-78.5**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:00                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 23.2                                                                           |
| Milliliters Purged (total)       | 1500                                                                           |
| pH                               | 6.97                                                                           |
| Conductivity (mS/cm)             | 2.23                                                                           |
| Turbidity (NTU)                  | 11.6                                                                           |
| Dissolved Oxygen (mg/L)          | 0.36                                                                           |
| Temperature (Degrees Celsius)    | 14                                                                             |
| Redox (ORP mV)                   | -78.5                                                                          |
| parameters                       | @15:00, DTW:23.2, pH:6.97, temp:14, cond:2.23, turb:11.6, DO:0.36, redox:-78.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:05, DTW:23.2, pH:6.97, temp:14.9, cond:2.23, turb:9.78, DO:0.34, redox:-78.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:05 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 23.2                                                                             |
| Milliliters Purged (total)    | 2000                                                                             |
| pH                            | 6.97                                                                             |
| Conductivity (mS/cm)          | 2.23                                                                             |
| Turbidity (NTU)               | 9.78                                                                             |
| Dissolved Oxygen (mg/L)       | 0.34                                                                             |
| Temperature (Degrees Celsius) | 14.9                                                                             |
| Redox (ORP mV)                | -78.1                                                                            |
| parameters                    | @15:05, DTW:23.2, pH:6.97, temp:14.9, cond:2.23, turb:9.78, DO:0.34, redox:-78.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:10, DTW:23.2, pH:6.97, temp:14.9, cond:2.23, turb:9.43, DO:0.34, redox:-77.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 23.2                                                                             |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 6.97                                                                             |
| Conductivity (mS/cm)             | 2.23                                                                             |
| Turbidity (NTU)                  | 9.43                                                                             |
| Dissolved Oxygen (mg/L)          | 0.34                                                                             |
| Temperature (Degrees Celsius)    | 14.9                                                                             |
| Redox (ORP mV)                   | -77.2                                                                            |
| parameters                       | @15:10, DTW:23.2, pH:6.97, temp:14.9, cond:2.23, turb:9.43, DO:0.34, redox:-77.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:15, DTW:23.2, pH:6.96, temp:14, cond:2.23, turb:9.25, DO:0.33, redox:-76.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:15                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 23.2                                                                           |
| Milliliters Purged (total)       | 3000                                                                           |
| pH                               | 6.96                                                                           |
| Conductivity (mS/cm)             | 2.23                                                                           |
| Turbidity (NTU)                  | 9.25                                                                           |
| Dissolved Oxygen (mg/L)          | 0.33                                                                           |
| Temperature (Degrees Celsius)    | 14                                                                             |
| Redox (ORP mV)                   | -76.1                                                                          |
| parameters                       | @15:15, DTW:23.2, pH:6.96, temp:14, cond:2.23, turb:9.25, DO:0.33, redox:-76.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 15:15       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 3000        |
| Well Volumes Purged           | 0.78        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:15 |
| Color         | Clear |
| Notable odors | No    |

## Metals, Total

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | Metals, Total  |
| Container Type       | 125 mL Plastic |
| Number of Containers | 1              |
| Preservative         | HNO3           |

## Well Information

|                          |                            |
|--------------------------|----------------------------|
| Well Location            | Off site, south of Plant 6 |
| Condition of Well        | Good                       |
| Well Locked at Arrival   | No                         |
| Well Locked at Departure | No                         |
| Photo of Well            |                            |



Signature

A handwritten signature in black ink, consisting of the characters '34' followed by a vertical line and a horizontal line, resembling '34/L'.

Signed 2019-06-10 19:00:25 UTC

---

## 2019-06-12, MW-13-36R, MW-13-36R

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 13:57:46 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-12 14:17:24 EDT by Christine Gregg |
| Location                                                                                          | 42.73706191, -84.57759546                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-12                                 |
| Well Identification                                                                               | MW-13-36R                                  |
| Well ID                                                                                           | MW-13-36R                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Mostly Cloudy Windy 70's                   |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 4.36          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 12.69         |
| Water Column                                                                                                                                                                                                                                              | 8.33          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.35          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 10            |
| Purge Start                                                                                                                                                                                                                                               | 13:40         |

### @13:40, DTW:4.36, pH:., temp:., cond:., turb:., DO:., redox:

|                            |                                                              |
|----------------------------|--------------------------------------------------------------|
| Reading Time               | 13:40                                                        |
| Rate (mL/min)              | 100                                                          |
| Depth to Water (ft)        | 4.36                                                         |
| Milliliters Purged (total) | 0                                                            |
| parameters                 | @13:40, DTW:4.36, pH:., temp:., cond:., turb:., DO:., redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:45, DTW:4.38, pH:11.84, temp:17, cond:1.48, turb:22.6, DO:0.65, redox:-74.4

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 4.38  |
| Milliliters Purged (total)       | 500   |
| pH                               | 11.84 |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.48                                                                            |
| Turbidity (NTU)               | 22.6                                                                            |
| Dissolved Oxygen (mg/L)       | 0.65                                                                            |
| Temperature (Degrees Celsius) | 17                                                                              |
| Redox (ORP mV)                | -74.4                                                                           |
| parameters                    | @13:45, DTW:4.38, pH:11.84, temp:17, cond:1.48, turb:22.6, DO:0.65, redox:-74.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:50, DTW:4.38, pH:11.87, temp:16.9, cond:1.5, turb:18.9, DO:0.37, redox:-73.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:50                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 4.38                                                                             |
| Milliliters Purged (total)       | 100                                                                              |
| pH                               | 11.87                                                                            |
| Conductivity (mS/cm)             | 1.5                                                                              |
| Turbidity (NTU)                  | 18.9                                                                             |
| Dissolved Oxygen (mg/L)          | 0.37                                                                             |
| Temperature (Degrees Celsius)    | 16.9                                                                             |
| Redox (ORP mV)                   | -73.4                                                                            |
| parameters                       | @13:50, DTW:4.38, pH:11.87, temp:16.9, cond:1.5, turb:18.9, DO:0.37, redox:-73.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:55, DTW:4.38, pH:11.85, temp:16.5, cond:1.49, turb:15.3, DO:0.25, redox:-66.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:55                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 4.38                                                                              |
| Milliliters Purged (total)       | 1500                                                                              |
| pH                               | 11.85                                                                             |
| Conductivity (mS/cm)             | 1.49                                                                              |
| Turbidity (NTU)                  | 15.3                                                                              |
| Dissolved Oxygen (mg/L)          | 0.25                                                                              |
| Temperature (Degrees Celsius)    | 16.5                                                                              |
| Redox (ORP mV)                   | -66.2                                                                             |
| parameters                       | @13:55, DTW:4.38, pH:11.85, temp:16.5, cond:1.49, turb:15.3, DO:0.25, redox:-66.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:00, DTW:4.38, pH:11.86, temp:16.3, cond:1.48, turb:13.8, DO:0.23, redox:-65.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:00 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                               |
| Depth to Water (ft)           | 4.38                                                                              |
| Milliliters Purged (total)    | 2000                                                                              |
| pH                            | 11.86                                                                             |
| Conductivity (mS/cm)          | 1.48                                                                              |
| Turbidity (NTU)               | 13.8                                                                              |
| Dissolved Oxygen (mg/L)       | 0.23                                                                              |
| Temperature (Degrees Celsius) | 16.3                                                                              |
| Redox (ORP mV)                | -65.5                                                                             |
| parameters                    | @14:00, DTW:4.38, pH:11.86, temp:16.3, cond:1.48, turb:13.8, DO:0.23, redox:-65.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:05, DTW:4.38, pH:11.86, temp:16.3, cond:1.47, turb:13.2, DO:0.22, redox:-64.8**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:05                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 4.38                                                                              |
| Milliliters Purged (total)       | 2500                                                                              |
| pH                               | 11.86                                                                             |
| Conductivity (mS/cm)             | 1.47                                                                              |
| Turbidity (NTU)                  | 13.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.22                                                                              |
| Temperature (Degrees Celsius)    | 16.3                                                                              |
| Redox (ORP mV)                   | -64.8                                                                             |
| parameters                       | @14:05, DTW:4.38, pH:11.86, temp:16.3, cond:1.47, turb:13.2, DO:0.22, redox:-64.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:10, DTW:4.38, pH:11.86, temp:16.1, cond:1.46, turb:11.7, DO:0.22, redox:-63.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 4.38                                                                              |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 11.86                                                                             |
| Conductivity (mS/cm)             | 1.46                                                                              |
| Turbidity (NTU)                  | 11.7                                                                              |
| Dissolved Oxygen (mg/L)          | 0.22                                                                              |
| Temperature (Degrees Celsius)    | 16.1                                                                              |
| Redox (ORP mV)                   | -63.9                                                                             |
| parameters                       | @14:10, DTW:4.38, pH:11.86, temp:16.1, cond:1.46, turb:11.7, DO:0.22, redox:-63.9 |



Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:15, DTW:4.38, pH:11.86, temp:16, cond:1.46, turb:10.3, DO:0.22, redox:-62.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 4.38                                                                            |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 11.86                                                                           |
| Conductivity (mS/cm)             | 1.46                                                                            |
| Turbidity (NTU)                  | 10.3                                                                            |
| Dissolved Oxygen (mg/L)          | 0.22                                                                            |
| Temperature (Degrees Celsius)    | 16                                                                              |
| Redox (ORP mV)                   | -62.9                                                                           |
| parameters                       | @14:15, DTW:4.38, pH:11.86, temp:16, cond:1.46, turb:10.3, DO:0.22, redox:-62.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:20, DTW:4.38, pH:11.86, temp:16, cond:1.45, turb:9.73, DO:0.19, redox:-62.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:20                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 4.38                                                                            |
| Milliliters Purged (total)       | 4000                                                                            |
| pH                               | 11.86                                                                           |
| Conductivity (mS/cm)             | 1.45                                                                            |
| Turbidity (NTU)                  | 9.73                                                                            |
| Dissolved Oxygen (mg/L)          | 0.19                                                                            |
| Temperature (Degrees Celsius)    | 16                                                                              |
| Redox (ORP mV)                   | -62.1                                                                           |
| parameters                       | @14:20, DTW:4.38, pH:11.86, temp:16, cond:1.45, turb:9.73, DO:0.19, redox:-62.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:25, DTW:4.38, pH:11.86, temp:15.9, cond:1.44, turb:9.46, DO:0.19, redox:-61.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 4.38  |
| Milliliters Purged (total)       | 4500  |
| pH                               | 11.86 |
| Conductivity (mS/cm)             | 1.44  |
| Turbidity (NTU)                  | 9.46  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.19                                                                              |
| Temperature (Degrees Celsius) | 15.9                                                                              |
| Redox (ORP mV)                | -61.2                                                                             |
| parameters                    | @14:25, DTW:4.38, pH:11.86, temp:15.9, cond:1.44, turb:9.46, DO:0.19, redox:-61.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:30, DTW:4.38, pH:11.85, temp:15.8, cond:1.44, turb:9.29, DO:0.2, redox:-60.6

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 4.38                                                                             |
| Milliliters Purged (total)       | 5000                                                                             |
| pH                               | 11.85                                                                            |
| Conductivity (mS/cm)             | 1.44                                                                             |
| Turbidity (NTU)                  | 9.29                                                                             |
| Dissolved Oxygen (mg/L)          | 0.2                                                                              |
| Temperature (Degrees Celsius)    | 15.8                                                                             |
| Redox (ORP mV)                   | -60.6                                                                            |
| parameters                       | @14:30, DTW:4.38, pH:11.85, temp:15.8, cond:1.44, turb:9.29, DO:0.2, redox:-60.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 14:30       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 5000        |
| Well Volumes Purged           | 0.98        |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:30 |
| Color         | Clear |
| Notable odors | No    |

### Metals, Total

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | Metals, Total  |
| Container Type       | 125 mL Plastic |
| Number of Containers | 1              |
| Preservative         | HNO3           |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |                   |
|--------------------------|-------------------|
| Well Location            | East side Plant 6 |
| Condition of Well        | Good              |
| Well Locked at Arrival   | Yes               |
| Well Locked at Departure | Yes               |
| Photo of Well            |                   |



Signature

306/L

Signed 2019-06-12 18:05:26 UTC

## 2019-08-27, MW-13-36R

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 17:31:42 UTC by Gary Schafer |
| Updated                                                                                           | 2020-03-31 18:41:58 UTC by Gary Schafer |
| Location                                                                                          | 42.5031880801939, -83.4427647293391     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-08-27                              |
| Well ID                                                                                           | MW-13-36R                               |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Sunny clouds temp 75                    |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 9.16          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 12.7          |
| Water Column                                                                                                                                                                                                                                               | 3.54          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                | 13:54         |

### @13:57, DTW:9.18, pH:10.47, temp:19.6, cond:1.64, turb:26.7, DO:0.12, redox:132.5

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 13:57                                                                             |
| Rate (mL/min)                 | 100                                                                               |
| Depth to Water (ft)           | 9.18                                                                              |
| pH                            | 10.47                                                                             |
| Conductivity (mS/cm)          | 1.64                                                                              |
| Turbidity (NTU)               | 26.7                                                                              |
| Dissolved Oxygen (mg/L)       | 0.12                                                                              |
| Temperature (Degrees Celsius) | 19.6                                                                              |
| Redox (ORP mV)                | 132.5                                                                             |
| parameters                    | @13:57, DTW:9.18, pH:10.47, temp:19.6, cond:1.64, turb:26.7, DO:0.12, redox:132.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:02, DTW:9.19, pH:10.57, temp:20.2, cond:1.62, turb:9, DO:0.1, redox:135.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:02 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 9.19  |
| pH                               | 10.57 |
| Conductivity (mS/cm)             | 1.62  |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Turbidity (NTU)               | 9                                                                             |
| Dissolved Oxygen (mg/L)       | 0.1                                                                           |
| Temperature (Degrees Celsius) | 20.2                                                                          |
| Redox (ORP mV)                | 135.7                                                                         |
| parameters                    | @14:02, DTW:9.19, pH:10.57, temp:20.2, cond:1.62, turb:9, DO:0.1, redox:135.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:07, DTW:9.19, pH:10.56, temp:20, cond:1.63, turb:8.1, DO:0.11, redox:135.2**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:07                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 9.19                                                                           |
| pH                               | 10.56                                                                          |
| Conductivity (mS/cm)             | 1.63                                                                           |
| Turbidity (NTU)                  | 8.1                                                                            |
| Dissolved Oxygen (mg/L)          | 0.11                                                                           |
| Temperature (Degrees Celsius)    | 20                                                                             |
| Redox (ORP mV)                   | 135.2                                                                          |
| parameters                       | @14:07, DTW:9.19, pH:10.56, temp:20, cond:1.63, turb:8.1, DO:0.11, redox:135.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:12, DTW:9.19, pH:10.53, temp:20.1, cond:1.62, turb:6.75, DO:0.11, redox:132.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:12                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 9.19                                                                              |
| pH                               | 10.53                                                                             |
| Conductivity (mS/cm)             | 1.62                                                                              |
| Turbidity (NTU)                  | 6.75                                                                              |
| Dissolved Oxygen (mg/L)          | 0.11                                                                              |
| Temperature (Degrees Celsius)    | 20.1                                                                              |
| Redox (ORP mV)                   | 132.2                                                                             |
| parameters                       | @14:12, DTW:9.19, pH:10.53, temp:20.1, cond:1.62, turb:6.75, DO:0.11, redox:132.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 14:16   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 1       |

### **Sample Information**

|             |       |
|-------------|-------|
| Sample Time | 14:13 |
|-------------|-------|

## Well Information

|                          |           |
|--------------------------|-----------|
| Well Location            | MW 13-36R |
| Condition of Well        | Good      |
| Well Locked at Arrival   | Yes       |
| Well Locked at Departure | Yes       |

Signature

A handwritten signature in black ink, reading "Gary Schuler". The signature is written in a cursive style with a large, stylized "G" and "S".

Signed 2020-03-31 18:41:57 UTC

## 2019-12-05, MW-13-36R

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-05 14:09:38 UTC by Gary Schafer |
| Updated                                                                                           | 2019-12-05 15:01:50 UTC by Gary Schafer |
| Location                                                                                          | 42.7370502613883, -84.5776630193783     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-12-05                              |
| Well ID                                                                                           | MW-13-36R                               |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Overcast slight winds temp.32           |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 4.5           |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 12.7          |
| Water Column                                                                                                                                                                                                                                               | 8.2           |
| Gallons in Well                                                                                                                                                                                                                                            | 1.33          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                | 09:00         |

### @09:00, DTW:4.5, pH:11.79, temp:7.6, cond:1222, turb:29.3, DO:1.09, redox:48.8

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 09:00                                                                          |
| Rate (mL/min)                 | 100                                                                            |
| Depth to Water (ft)           | 4.5                                                                            |
| pH                            | 11.79                                                                          |
| Conductivity (mS/cm)          | 1222                                                                           |
| Turbidity (NTU)               | 29.3                                                                           |
| Dissolved Oxygen (mg/L)       | 1.09                                                                           |
| Temperature (Degrees Celsius) | 7.6                                                                            |
| Redox (ORP mV)                | 48.8                                                                           |
| parameters                    | @09:00, DTW:4.5, pH:11.79, temp:7.6, cond:1222, turb:29.3, DO:1.09, redox:48.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:05, DTW:4.5, pH:11.77, temp:7.7, cond:1226, turb:25.8, DO:1.03, redox:40.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 4.5                                                                            |
| pH                                                                                                                                                                                                                                                                                                                                               | 11.77                                                                          |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1226                                                                           |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 25.8                                                                           |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 1.03                                                                           |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 7.7                                                                            |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 40.5                                                                           |
| parameters                                                                                                                                                                                                                                                                                                                                       | @09:05, DTW:4.5, pH:11.77, temp:7.7, cond:1226, turb:25.8, DO:1.03, redox:40.5 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                |

#### **@09:10, DTW:4.5, pH:11.78, temp:7.7, cond:1229, turb:17, DO:1, redox:24**

|                                  |                                                                         |
|----------------------------------|-------------------------------------------------------------------------|
| Reading Time                     | 09:10                                                                   |
| Minutes Elapsed between readings | 5                                                                       |
| Rate (mL/min)                    | 100                                                                     |
| Depth to Water (ft)              | 4.5                                                                     |
| pH                               | 11.78                                                                   |
| Conductivity (mS/cm)             | 1229                                                                    |
| Turbidity (NTU)                  | 17                                                                      |
| Dissolved Oxygen (mg/L)          | 1                                                                       |
| Temperature (Degrees Celsius)    | 7.7                                                                     |
| Redox (ORP mV)                   | 24                                                                      |
| parameters                       | @09:10, DTW:4.5, pH:11.78, temp:7.7, cond:1229, turb:17, DO:1, redox:24 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@09:15, DTW:4.5, pH:11.79, temp:7.7, cond:1234, turb:16.5, DO:0.93, redox:16.9**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 09:15                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 4.5                                                                            |
| pH                               | 11.79                                                                          |
| Conductivity (mS/cm)             | 1234                                                                           |
| Turbidity (NTU)                  | 16.5                                                                           |
| Dissolved Oxygen (mg/L)          | 0.93                                                                           |
| Temperature (Degrees Celsius)    | 7.7                                                                            |
| Redox (ORP mV)                   | 16.9                                                                           |
| parameters                       | @09:15, DTW:4.5, pH:11.79, temp:7.7, cond:1234, turb:16.5, DO:0.93, redox:16.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@09:20, DTW:4.5, pH:11.82, temp:7.7, cond:1269, turb:18.3, DO:0.81, redox:3.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:20 |
| Minutes Elapsed between readings | 5     |



|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                           |
| Depth to Water (ft)           | 4.5                                                                           |
| pH                            | 11.82                                                                         |
| Conductivity (mS/cm)          | 1269                                                                          |
| Turbidity (NTU)               | 18.3                                                                          |
| Dissolved Oxygen (mg/L)       | 0.81                                                                          |
| Temperature (Degrees Celsius) | 7.7                                                                           |
| Redox (ORP mV)                | 3.2                                                                           |
| parameters                    | @09:20, DTW:4.5, pH:11.82, temp:7.7, cond:1269, turb:18.3, DO:0.81, redox:3.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:25, DTW:4.52, pH:11.87, temp:8, cond:1297, turb:17, DO:0.67, redox:-13.1**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 09:25                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 4.52                                                                         |
| pH                               | 11.87                                                                        |
| Conductivity (mS/cm)             | 1297                                                                         |
| Turbidity (NTU)                  | 17                                                                           |
| Dissolved Oxygen (mg/L)          | 0.67                                                                         |
| Temperature (Degrees Celsius)    | 8                                                                            |
| Redox (ORP mV)                   | -13.1                                                                        |
| parameters                       | @09:25, DTW:4.52, pH:11.87, temp:8, cond:1297, turb:17, DO:0.67, redox:-13.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:30, DTW:4.52, pH:11.9, temp:7.9, cond:1332, turb:15, DO:0.6, redox:-19.7**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 09:30                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 4.52                                                                         |
| pH                               | 11.9                                                                         |
| Conductivity (mS/cm)             | 1332                                                                         |
| Turbidity (NTU)                  | 15                                                                           |
| Dissolved Oxygen (mg/L)          | 0.6                                                                          |
| Temperature (Degrees Celsius)    | 7.9                                                                          |
| Redox (ORP mV)                   | -19.7                                                                        |
| parameters                       | @09:30, DTW:4.52, pH:11.9, temp:7.9, cond:1332, turb:15, DO:0.6, redox:-19.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:35, DTW:4.52, pH:11.93, temp:7.9, cond:1353, turb:13.5, DO:0.69, redox:-29.1**

|              |       |
|--------------|-------|
| Reading Time | 09:35 |
|--------------|-------|

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 4.52                                                                             |
| pH                               | 11.93                                                                            |
| Conductivity (mS/cm)             | 1353                                                                             |
| Turbidity (NTU)                  | 13.5                                                                             |
| Dissolved Oxygen (mg/L)          | 0.69                                                                             |
| Temperature (Degrees Celsius)    | 7.9                                                                              |
| Redox (ORP mV)                   | -29.1                                                                            |
| parameters                       | @09:35, DTW:4.52, pH:11.93, temp:7.9, cond:1353, turb:13.5, DO:0.69, redox:-29.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:40, DTW:4.52, pH:11.79, temp:7.8, cond:1330, turb:12.6, DO:0.67, redox:-29.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 4.52                                                                             |
| pH                               | 11.79                                                                            |
| Conductivity (mS/cm)             | 1330                                                                             |
| Turbidity (NTU)                  | 12.6                                                                             |
| Dissolved Oxygen (mg/L)          | 0.67                                                                             |
| Temperature (Degrees Celsius)    | 7.8                                                                              |
| Redox (ORP mV)                   | -29.1                                                                            |
| parameters                       | @09:40, DTW:4.52, pH:11.79, temp:7.8, cond:1330, turb:12.6, DO:0.67, redox:-29.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:45, DTW:4.54, pH:11.8, temp:7.9, cond:1345, turb:12, DO:0.68, redox:-30.1**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 4.54                                                                          |
| pH                               | 11.8                                                                          |
| Conductivity (mS/cm)             | 1345                                                                          |
| Turbidity (NTU)                  | 12                                                                            |
| Dissolved Oxygen (mg/L)          | 0.68                                                                          |
| Temperature (Degrees Celsius)    | 7.9                                                                           |
| Redox (ORP mV)                   | -30.1                                                                         |
| parameters                       | @09:45, DTW:4.54, pH:11.8, temp:7.9, cond:1345, turb:12, DO:0.68, redox:-30.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 09:47 |
|-----------|-------|

|                               |         |
|-------------------------------|---------|
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 1       |
| Well Volumes Purged           | 0.75    |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 09:47 |
| Color         | Clear |
| Notable odors | None  |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 9              |

### Well Information

|                          |                               |
|--------------------------|-------------------------------|
| Well Location            | MW13-36R                      |
| Condition of Well        | Good                          |
| Well Locked at Arrival   | Yes                           |
| Well Locked at Departure | Yes                           |
| Comments                 | MW-13-36R. Sampled for MS/MSD |

Signature



Signed 2019-12-05 15:01:48 UTC

## 2019-06-10, MW-13-38, MW-13-38

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 11:51:07 EDT by Gary Schafer    |
| Updated                                                                                           | 2019-06-10 13:16:34 EDT by Christine Gregg |
| Location                                                                                          | 42.74593139, -84.58442713                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Gary Schafer                               |
| Date                                                                                              | 2019-06-10                                 |
| Well Identification                                                                               | MW-13-38                                   |
| Well ID                                                                                           | MW-13-38                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Overcast, winds 12-15 mph temp 68          |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 4             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 69.21         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 69.25         |
| Purge Start                                                                                                                                                                                                                                                  | 11:48         |

### @11:50, DTW:61.13, pH:7.1, temp:17.1, cond:2.72, turb:59.3, DO:6.66, redox:-75.2

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 11:50                                                                            |
| Rate (mL/min)                 | 150                                                                              |
| Depth to Water (ft)           | 61.13                                                                            |
| pH                            | 7.1                                                                              |
| Conductivity (mS/cm)          | 2.72                                                                             |
| Turbidity (NTU)               | 59.3                                                                             |
| Dissolved Oxygen (mg/L)       | 6.66                                                                             |
| Temperature (Degrees Celsius) | 17.1                                                                             |
| Redox (ORP mV)                | -75.2                                                                            |
| parameters                    | @11:50, DTW:61.13, pH:7.1, temp:17.1, cond:2.72, turb:59.3, DO:6.66, redox:-75.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:55, DTW:61.13, pH:7.1, temp:17, cond:2.73, turb:49.9, DO:6.26, redox:-77.2

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 61.13 |

|                               |       |
|-------------------------------|-------|
| pH                            | 7.1   |
| Conductivity (mS/cm)          | 2.73  |
| Turbidity (NTU)               | 49.9  |
| Dissolved Oxygen (mg/L)       | 6.26  |
| Temperature (Degrees Celsius) | 17    |
| Redox (ORP mV)                | -77.2 |

parameters @11:55, DTW:61.13, pH:7.1, temp:17, cond:2.73, turb:49.9, DO:6.26, redox:-77.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:00, DTW:69.21, pH:7.11, temp:16.8, cond:2.73, turb:48.7, DO:6.04, redox:-76.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 69.21 |
| pH                               | 7.11  |
| Conductivity (mS/cm)             | 2.73  |
| Turbidity (NTU)                  | 48.7  |
| Dissolved Oxygen (mg/L)          | 6.04  |
| Temperature (Degrees Celsius)    | 16.8  |
| Redox (ORP mV)                   | -76.3 |

parameters @12:00, DTW:69.21, pH:7.11, temp:16.8, cond:2.73, turb:48.7, DO:6.04, redox:-76.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:05, DTW:69.21, pH:7.11, temp:16.7, cond:2.73, turb:39.6, DO:5.72, redox:-75.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 69.21 |
| pH                               | 7.11  |
| Conductivity (mS/cm)             | 2.73  |
| Turbidity (NTU)                  | 39.6  |
| Dissolved Oxygen (mg/L)          | 5.72  |
| Temperature (Degrees Celsius)    | 16.7  |
| Redox (ORP mV)                   | -75.3 |

parameters @12:05, DTW:69.21, pH:7.11, temp:16.7, cond:2.73, turb:39.6, DO:5.72, redox:-75.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:10, DTW:69.21, pH:7.11, temp:16.3, cond:2.72, turb:31.1, DO:5.6, redox:-74.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Depth to Water (ft)           | 69.21                                                                            |
| pH                            | 7.11                                                                             |
| Conductivity (mS/cm)          | 2.72                                                                             |
| Turbidity (NTU)               | 31.1                                                                             |
| Dissolved Oxygen (mg/L)       | 5.6                                                                              |
| Temperature (Degrees Celsius) | 16.3                                                                             |
| Redox (ORP mV)                | -74.7                                                                            |
| parameters                    | @12:10, DTW:69.21, pH:7.11, temp:16.3, cond:2.72, turb:31.1, DO:5.6, redox:-74.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@12:15, DTW:69.21, pH:7.11, temp:16.2, cond:2.72, turb:22.1, DO:5.4, redox:-74**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:15                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 150                                                                            |
| Depth to Water (ft)              | 69.21                                                                          |
| pH                               | 7.11                                                                           |
| Conductivity (mS/cm)             | 2.72                                                                           |
| Turbidity (NTU)                  | 22.1                                                                           |
| Dissolved Oxygen (mg/L)          | 5.4                                                                            |
| Temperature (Degrees Celsius)    | 16.2                                                                           |
| Redox (ORP mV)                   | -74                                                                            |
| parameters                       | @12:15, DTW:69.21, pH:7.11, temp:16.2, cond:2.72, turb:22.1, DO:5.4, redox:-74 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@12:20, DTW:69.21, pH:7.11, temp:16.3, cond:2.71, turb:18.8, DO:5.26, redox:-73.8**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 69.21                                                                             |
| pH                               | 7.11                                                                              |
| Conductivity (mS/cm)             | 2.71                                                                              |
| Turbidity (NTU)                  | 18.8                                                                              |
| Dissolved Oxygen (mg/L)          | 5.26                                                                              |
| Temperature (Degrees Celsius)    | 16.3                                                                              |
| Redox (ORP mV)                   | -73.8                                                                             |
| parameters                       | @12:20, DTW:69.21, pH:7.11, temp:16.3, cond:2.71, turb:18.8, DO:5.26, redox:-73.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@12:25, DTW:69.21, pH:7.12, temp:16.1, cond:2.71, turb:17.1, DO:4.97, redox:-73.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:25 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 150                                                                               |
| Depth to Water (ft)           | 69.21                                                                             |
| pH                            | 7.12                                                                              |
| Conductivity (mS/cm)          | 2.71                                                                              |
| Turbidity (NTU)               | 17.1                                                                              |
| Dissolved Oxygen (mg/L)       | 4.97                                                                              |
| Temperature (Degrees Celsius) | 16.1                                                                              |
| Redox (ORP mV)                | -73.5                                                                             |
| parameters                    | @12:25, DTW:69.21, pH:7.12, temp:16.1, cond:2.71, turb:17.1, DO:4.97, redox:-73.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:30, DTW:69.21, pH:7.12, temp:16, cond:2.7, turb:14.1, DO:4.93, redox:-71.3**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 150                                                                            |
| Depth to Water (ft)              | 69.21                                                                          |
| pH                               | 7.12                                                                           |
| Conductivity (mS/cm)             | 2.7                                                                            |
| Turbidity (NTU)                  | 14.1                                                                           |
| Dissolved Oxygen (mg/L)          | 4.93                                                                           |
| Temperature (Degrees Celsius)    | 16                                                                             |
| Redox (ORP mV)                   | -71.3                                                                          |
| parameters                       | @12:30, DTW:69.21, pH:7.12, temp:16, cond:2.7, turb:14.1, DO:4.93, redox:-71.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:35, DTW:69.21, pH:7.12, temp:15.9, cond:2.68, turb:11.6, DO:4.77, redox:-69.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 69.21                                                                             |
| pH                               | 7.12                                                                              |
| Conductivity (mS/cm)             | 2.68                                                                              |
| Turbidity (NTU)                  | 11.6                                                                              |
| Dissolved Oxygen (mg/L)          | 4.77                                                                              |
| Temperature (Degrees Celsius)    | 15.9                                                                              |
| Redox (ORP mV)                   | -69.2                                                                             |
| parameters                       | @12:35, DTW:69.21, pH:7.12, temp:15.9, cond:2.68, turb:11.6, DO:4.77, redox:-69.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:40, DTW:69.21, pH:7.13, temp:15.8, cond:2.67, turb:11.6, DO:4.37, redox:-66.1**

|              |       |
|--------------|-------|
| Reading Time | 12:40 |
|--------------|-------|

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 69.21                                                                             |
| pH                               | 7.13                                                                              |
| Conductivity (mS/cm)             | 2.67                                                                              |
| Turbidity (NTU)                  | 11.6                                                                              |
| Dissolved Oxygen (mg/L)          | 4.37                                                                              |
| Temperature (Degrees Celsius)    | 15.8                                                                              |
| Redox (ORP mV)                   | -66.1                                                                             |
| parameters                       | @12:40, DTW:69.21, pH:7.13, temp:15.8, cond:2.67, turb:11.6, DO:4.37, redox:-66.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:45, DTW:69.21, pH:7.13, temp:15.9, cond:2.66, turb:15.4, DO:4.04, redox:-63.7

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:45                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 69.21                                                                             |
| pH                               | 7.13                                                                              |
| Conductivity (mS/cm)             | 2.66                                                                              |
| Turbidity (NTU)                  | 15.4                                                                              |
| Dissolved Oxygen (mg/L)          | 4.04                                                                              |
| Temperature (Degrees Celsius)    | 15.9                                                                              |
| Redox (ORP mV)                   | -63.7                                                                             |
| parameters                       | @12:45, DTW:69.21, pH:7.13, temp:15.9, cond:2.66, turb:15.4, DO:4.04, redox:-63.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 12:47   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 2.5     |

### Sample Information

|               |               |
|---------------|---------------|
| Sample Time   | 12:47         |
| Color         | Slight cloudy |
| Notable odors | None          |

### Well Information

|                          |                                |
|--------------------------|--------------------------------|
| Well Location            | MW-13-38                       |
| Condition of Well        | Poor no cover over well casing |
| Well Locked at Arrival   | No                             |
| Well Locked at Departure | No                             |
| Photo of Well            |                                |





Signature

A handwritten signature in black ink, appearing to be 'Hansel' or similar, written in a cursive style.

Signed 2019-06-10 17:07:22 UTC

---

## 2019-06-11, MW-13-40, MW-13-40

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-11 09:50:07 EDT by Gary Schafer    |
| Updated                                                                                           | 2019-06-11 16:25:43 EDT by Christine Gregg |
| Location                                                                                          | 42.74641339, -84.58425337                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Gary Schafer                               |
| Date                                                                                              | 2019-06-11                                 |
| Well Identification                                                                               | MW-13-40                                   |
| Well ID                                                                                           | MW-13-40                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Sunny temp 64                              |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 59.95         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 80            |
| Water Column                                                                                                                                                                                                                                              | 20.05         |
| Gallons in Well                                                                                                                                                                                                                                           | 3.26          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 61.9          |
| Purge Start                                                                                                                                                                                                                                               | 09:47         |

### @09:47, DTW:69.21, pH:6.83, temp:16.3, cond:6.67, turb:30.3, DO:0.43, redox:-61.3

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 09:47                                                                             |
| Rate (mL/min)                 | 150                                                                               |
| Depth to Water (ft)           | 69.21                                                                             |
| pH                            | 6.83                                                                              |
| Conductivity (mS/cm)          | 6.67                                                                              |
| Turbidity (NTU)               | 30.3                                                                              |
| Dissolved Oxygen (mg/L)       | 0.43                                                                              |
| Temperature (Degrees Celsius) | 16.3                                                                              |
| Redox (ORP mV)                | -61.3                                                                             |
| parameters                    | @09:47, DTW:69.21, pH:6.83, temp:16.3, cond:6.67, turb:30.3, DO:0.43, redox:-61.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:52, DTW:69.21, pH:6.83, temp:16.5, cond:6.75, turb:26.1, DO:0.39, redox:-62.8

|              |       |
|--------------|-------|
| Reading Time | 09:52 |
|--------------|-------|

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 69.21                                                                             |
| pH                               | 6.83                                                                              |
| Conductivity (mS/cm)             | 6.75                                                                              |
| Turbidity (NTU)                  | 26.1                                                                              |
| Dissolved Oxygen (mg/L)          | 0.39                                                                              |
| Temperature (Degrees Celsius)    | 16.5                                                                              |
| Redox (ORP mV)                   | -62.8                                                                             |
| parameters                       | @09:52, DTW:69.21, pH:6.83, temp:16.5, cond:6.75, turb:26.1, DO:0.39, redox:-62.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:57, DTW:69.21, pH:6.83, temp:16.3, cond:6.82, turb:20.9, DO:0.4, redox:-62.9**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:57                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 69.21                                                                            |
| pH                               | 6.83                                                                             |
| Conductivity (mS/cm)             | 6.82                                                                             |
| Turbidity (NTU)                  | 20.9                                                                             |
| Dissolved Oxygen (mg/L)          | 0.4                                                                              |
| Temperature (Degrees Celsius)    | 16.3                                                                             |
| Redox (ORP mV)                   | -62.9                                                                            |
| parameters                       | @09:57, DTW:69.21, pH:6.83, temp:16.3, cond:6.82, turb:20.9, DO:0.4, redox:-62.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:02, DTW:69.21, pH:6.84, temp:16.5, cond:6.88, turb:39.8, DO:0.32, redox:-61.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:02                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 69.21                                                                             |
| pH                               | 6.84                                                                              |
| Conductivity (mS/cm)             | 6.88                                                                              |
| Turbidity (NTU)                  | 39.8                                                                              |
| Dissolved Oxygen (mg/L)          | 0.32                                                                              |
| Temperature (Degrees Celsius)    | 16.5                                                                              |
| Redox (ORP mV)                   | -61.2                                                                             |
| parameters                       | @10:02, DTW:69.21, pH:6.84, temp:16.5, cond:6.88, turb:39.8, DO:0.32, redox:-61.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:07, DTW:69.21, pH:6.84, temp:16.3, cond:6.92, turb:36.7, DO:0.31, redox:-61**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:07                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 69.21                                                                           |
| pH                               | 6.84                                                                            |
| Conductivity (mS/cm)             | 6.92                                                                            |
| Turbidity (NTU)                  | 36.7                                                                            |
| Dissolved Oxygen (mg/L)          | 0.31                                                                            |
| Temperature (Degrees Celsius)    | 16.3                                                                            |
| Redox (ORP mV)                   | -61                                                                             |
| parameters                       | @10:07, DTW:69.21, pH:6.84, temp:16.3, cond:6.92, turb:36.7, DO:0.31, redox:-61 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:12, DTW:69.21, pH:6.84, temp:16.6, cond:6.92, turb:38.4, DO:0.29, redox:-60.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:12                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 69.21                                                                             |
| pH                               | 6.84                                                                              |
| Conductivity (mS/cm)             | 6.92                                                                              |
| Turbidity (NTU)                  | 38.4                                                                              |
| Dissolved Oxygen (mg/L)          | 0.29                                                                              |
| Temperature (Degrees Celsius)    | 16.6                                                                              |
| Redox (ORP mV)                   | -60.5                                                                             |
| parameters                       | @10:12, DTW:69.21, pH:6.84, temp:16.6, cond:6.92, turb:38.4, DO:0.29, redox:-60.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:17, DTW:69.21, pH:6.83, temp:16.5, cond:6.94, turb:42.4, DO:0.57, redox:-59.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:17                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 69.21                                                                             |
| pH                               | 6.83                                                                              |
| Conductivity (mS/cm)             | 6.94                                                                              |
| Turbidity (NTU)                  | 42.4                                                                              |
| Dissolved Oxygen (mg/L)          | 0.57                                                                              |
| Temperature (Degrees Celsius)    | 16.5                                                                              |
| Redox (ORP mV)                   | -59.2                                                                             |
| parameters                       | @10:17, DTW:69.21, pH:6.83, temp:16.5, cond:6.94, turb:42.4, DO:0.57, redox:-59.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:22, DTW:69.21, pH:6.84, temp:16.7, cond:6.94, turb:35.3, DO:0.28, redox:-59.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:22                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 69.21                                                                             |
| pH                               | 6.84                                                                              |
| Conductivity (mS/cm)             | 6.94                                                                              |
| Turbidity (NTU)                  | 35.3                                                                              |
| Dissolved Oxygen (mg/L)          | 0.28                                                                              |
| Temperature (Degrees Celsius)    | 16.7                                                                              |
| Redox (ORP mV)                   | -59.1                                                                             |
| parameters                       | @10:22, DTW:69.21, pH:6.84, temp:16.7, cond:6.94, turb:35.3, DO:0.28, redox:-59.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:27, DTW:69.21, pH:6.84, temp:16.5, cond:6.95, turb:39, DO:0.26, redox:-58**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 10:27                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 150                                                                           |
| Depth to Water (ft)              | 69.21                                                                         |
| pH                               | 6.84                                                                          |
| Conductivity (mS/cm)             | 6.95                                                                          |
| Turbidity (NTU)                  | 39                                                                            |
| Dissolved Oxygen (mg/L)          | 0.26                                                                          |
| Temperature (Degrees Celsius)    | 16.5                                                                          |
| Redox (ORP mV)                   | -58                                                                           |
| parameters                       | @10:27, DTW:69.21, pH:6.84, temp:16.5, cond:6.95, turb:39, DO:0.26, redox:-58 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:32, DTW:69.21, pH:6.84, temp:16.4, cond:6.97, turb:22, DO:0.24, redox:-57.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:32                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 69.21                                                                           |
| pH                               | 6.84                                                                            |
| Conductivity (mS/cm)             | 6.97                                                                            |
| Turbidity (NTU)                  | 22                                                                              |
| Dissolved Oxygen (mg/L)          | 0.24                                                                            |
| Temperature (Degrees Celsius)    | 16.4                                                                            |
| Redox (ORP mV)                   | -57.4                                                                           |
| parameters                       | @10:32, DTW:69.21, pH:6.84, temp:16.4, cond:6.97, turb:22, DO:0.24, redox:-57.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:37, DTW:69.21, pH:6.84, temp:16.3, cond:7, turb:18.8, DO:0.24, redox:-56.5**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 10:37                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 150                                                                            |
| Depth to Water (ft)              | 69.21                                                                          |
| pH                               | 6.84                                                                           |
| Conductivity (mS/cm)             | 7                                                                              |
| Turbidity (NTU)                  | 18.8                                                                           |
| Dissolved Oxygen (mg/L)          | 0.24                                                                           |
| Temperature (Degrees Celsius)    | 16.3                                                                           |
| Redox (ORP mV)                   | -56.5                                                                          |
| parameters                       | @10:37, DTW:69.21, pH:6.84, temp:16.3, cond:7, turb:18.8, DO:0.24, redox:-56.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:42, DTW:69.21, pH:6.84, temp:16.5, cond:6.98, turb:16.4, DO:0.23, redox:-56.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:42                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 69.21                                                                             |
| pH                               | 6.84                                                                              |
| Conductivity (mS/cm)             | 6.98                                                                              |
| Turbidity (NTU)                  | 16.4                                                                              |
| Dissolved Oxygen (mg/L)          | 0.23                                                                              |
| Temperature (Degrees Celsius)    | 16.5                                                                              |
| Redox (ORP mV)                   | -56.1                                                                             |
| parameters                       | @10:42, DTW:69.21, pH:6.84, temp:16.5, cond:6.98, turb:16.4, DO:0.23, redox:-56.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:47, DTW:61.9, pH:6.84, temp:16.4, cond:7, turb:27.6, DO:0.23, redox:-55.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:47 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 61.9  |
| pH                               | 6.84  |
| Conductivity (mS/cm)             | 7     |
| Turbidity (NTU)                  | 27.6  |
| Dissolved Oxygen (mg/L)          | 0.23  |
| Temperature (Degrees Celsius)    | 16.4  |
| Redox (ORP mV)                   | -55.2 |

parameters

@10:47, DTW:61.9, pH:6.84, temp:16.4, cond:7, turb:27.6, DO:0.23, redox:-55.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 10:48 |
|-----------|-------|

|                               |         |
|-------------------------------|---------|
| Total Volume Measured (units) | Gallons |
|-------------------------------|---------|

|                      |   |
|----------------------|---|
| Total Gallons Purged | 3 |
|----------------------|---|

|                     |      |
|---------------------|------|
| Well Volumes Purged | 0.92 |
|---------------------|------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 10:48 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### Well Information

|               |          |
|---------------|----------|
| Well Location | MW-13-40 |
|---------------|----------|

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature



Signed 2019-06-11 14:54:00 UTC



## 2019-06-10, MW-13-41, MW-13-41

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 09:49:43 EDT by Gary Schafer    |
| Updated                                                                                           | 2019-06-10 11:09:36 EDT by Christine Gregg |
| Location                                                                                          | 42.74593127, -84.5842512                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Gary Schafer                               |
| Date                                                                                              | 2019-06-10                                 |
| Well Identification                                                                               | MW-13-41                                   |
| Well ID                                                                                           | MW-13-41                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Overcast temp 70                           |

### Evacuation Details

|                                                                                                                                                                                                                                                                    |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                   | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                           | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                        | 61.13         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1\text{ foot}$ ] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                       | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                             | Bladder       |
| Sample Method                                                                                                                                                                                                                                                      | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                           | 61.15         |
| Purge Start                                                                                                                                                                                                                                                        | 09:50         |

### @09:53, DTW:50.35, pH:7.1, temp:16.5, cond:5.44, turb:925, DO:0.37, redox:-79.7

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 09:53                                                                           |
| Rate (mL/min)                 | 150                                                                             |
| Depth to Water (ft)           | 50.35                                                                           |
| pH                            | 7.1                                                                             |
| Conductivity (mS/cm)          | 5.44                                                                            |
| Turbidity (NTU)               | 925                                                                             |
| Dissolved Oxygen (mg/L)       | 0.37                                                                            |
| Temperature (Degrees Celsius) | 16.5                                                                            |
| Redox (ORP mV)                | -79.7                                                                           |
| parameters                    | @09:53, DTW:50.35, pH:7.1, temp:16.5, cond:5.44, turb:925, DO:0.37, redox:-79.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:58, DTW:50.35, pH:7.12, temp:16.6, cond:5.39, turb:940, DO:0.45, redox:-78.6

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:58 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 50.35 |

|                               |       |
|-------------------------------|-------|
| pH                            | 7.12  |
| Conductivity (mS/cm)          | 5.39  |
| Turbidity (NTU)               | 940   |
| Dissolved Oxygen (mg/L)       | 0.45  |
| Temperature (Degrees Celsius) | 16.6  |
| Redox (ORP mV)                | -78.6 |

parameters @09:58, DTW:50.35, pH:7.12, temp:16.6, cond:5.39, turb:940, DO:0.45, redox:-78.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:03, DTW:61.13, pH:7.14, temp:16.2, cond:5.33, turb:825, DO:0.56, redox:-68**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:03 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 61.13 |
| pH                               | 7.14  |
| Conductivity (mS/cm)             | 5.33  |
| Turbidity (NTU)                  | 825   |
| Dissolved Oxygen (mg/L)          | 0.56  |
| Temperature (Degrees Celsius)    | 16.2  |
| Redox (ORP mV)                   | -68   |

parameters @10:03, DTW:61.13, pH:7.14, temp:16.2, cond:5.33, turb:825, DO:0.56, redox:-68

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:08, DTW:61.13, pH:7.14, temp:17, cond:778, turb:0.81, DO:0.81, redox:-62.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:08 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 61.13 |
| pH                               | 7.14  |
| Conductivity (mS/cm)             | 778   |
| Turbidity (NTU)                  | 0.81  |
| Dissolved Oxygen (mg/L)          | 0.81  |
| Temperature (Degrees Celsius)    | 17    |
| Redox (ORP mV)                   | -62.8 |

parameters @10:08, DTW:61.13, pH:7.14, temp:17, cond:778, turb:0.81, DO:0.81, redox:-62.8

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:13, DTW:61.13, pH:7.14, temp:17.1, cond:5.3, turb:656, DO:1.02, redox:-68.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:13 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Depth to Water (ft)           | 61.13                                                                           |
| pH                            | 7.14                                                                            |
| Conductivity (mS/cm)          | 5.3                                                                             |
| Turbidity (NTU)               | 656                                                                             |
| Dissolved Oxygen (mg/L)       | 1.02                                                                            |
| Temperature (Degrees Celsius) | 17.1                                                                            |
| Redox (ORP mV)                | -68.6                                                                           |
| parameters                    | @10:13, DTW:61.13, pH:7.14, temp:17.1, cond:5.3, turb:656, DO:1.02, redox:-68.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:18, DTW:61.13, pH:7.17, temp:17.2, cond:5.31, turb:398, DO:0.77, redox:-71**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 10:18                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 150                                                                            |
| Depth to Water (ft)              | 61.13                                                                          |
| pH                               | 7.17                                                                           |
| Conductivity (mS/cm)             | 5.31                                                                           |
| Turbidity (NTU)                  | 398                                                                            |
| Dissolved Oxygen (mg/L)          | 0.77                                                                           |
| Temperature (Degrees Celsius)    | 17.2                                                                           |
| Redox (ORP mV)                   | -71                                                                            |
| parameters                       | @10:18, DTW:61.13, pH:7.17, temp:17.2, cond:5.31, turb:398, DO:0.77, redox:-71 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:23, DTW:61.13, pH:7.18, temp:17.2, cond:5.37, turb:464, DO:0.79, redox:-69.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:23                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 61.13                                                                            |
| pH                               | 7.18                                                                             |
| Conductivity (mS/cm)             | 5.37                                                                             |
| Turbidity (NTU)                  | 464                                                                              |
| Dissolved Oxygen (mg/L)          | 0.79                                                                             |
| Temperature (Degrees Celsius)    | 17.2                                                                             |
| Redox (ORP mV)                   | -69.4                                                                            |
| parameters                       | @10:23, DTW:61.13, pH:7.18, temp:17.2, cond:5.37, turb:464, DO:0.79, redox:-69.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:28, DTW:61.13, pH:7.2, temp:17.2, cond:5.37, turb:231, DO:0.5, redox:-77.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:28 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Rate (mL/min)                 | 150                                                                            |
| Depth to Water (ft)           | 61.13                                                                          |
| pH                            | 7.2                                                                            |
| Conductivity (mS/cm)          | 5.37                                                                           |
| Turbidity (NTU)               | 231                                                                            |
| Dissolved Oxygen (mg/L)       | 0.5                                                                            |
| Temperature (Degrees Celsius) | 17.2                                                                           |
| Redox (ORP mV)                | -77.4                                                                          |
| parameters                    | @10:28, DTW:61.13, pH:7.2, temp:17.2, cond:5.37, turb:231, DO:0.5, redox:-77.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:33, DTW:61.13, pH:7.2, temp:17.3, cond:5.35, turb:153, DO:0.43, redox:-79.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:33                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 61.13                                                                           |
| pH                               | 7.2                                                                             |
| Conductivity (mS/cm)             | 5.35                                                                            |
| Turbidity (NTU)                  | 153                                                                             |
| Dissolved Oxygen (mg/L)          | 0.43                                                                            |
| Temperature (Degrees Celsius)    | 17.3                                                                            |
| Redox (ORP mV)                   | -79.2                                                                           |
| parameters                       | @10:33, DTW:61.13, pH:7.2, temp:17.3, cond:5.35, turb:153, DO:0.43, redox:-79.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:38, DTW:61.13, pH:7.2, temp:17.3, cond:5.36, turb:90.8, DO:0.53, redox:-76.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:38                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 61.13                                                                            |
| pH                               | 7.2                                                                              |
| Conductivity (mS/cm)             | 5.36                                                                             |
| Turbidity (NTU)                  | 90.8                                                                             |
| Dissolved Oxygen (mg/L)          | 0.53                                                                             |
| Temperature (Degrees Celsius)    | 17.3                                                                             |
| Redox (ORP mV)                   | -76.8                                                                            |
| parameters                       | @10:38, DTW:61.13, pH:7.2, temp:17.3, cond:5.36, turb:90.8, DO:0.53, redox:-76.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:43, DTW:61.13, pH:7.2, temp:17.3, cond:5.35, turb:61.4, DO:0.56, redox:-76**

|              |       |
|--------------|-------|
| Reading Time | 10:43 |
|--------------|-------|

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 150                                                                            |
| Depth to Water (ft)              | 61.13                                                                          |
| pH                               | 7.2                                                                            |
| Conductivity (mS/cm)             | 5.35                                                                           |
| Turbidity (NTU)                  | 61.4                                                                           |
| Dissolved Oxygen (mg/L)          | 0.56                                                                           |
| Temperature (Degrees Celsius)    | 17.3                                                                           |
| Redox (ORP mV)                   | -76                                                                            |
| parameters                       | @10:43, DTW:61.13, pH:7.2, temp:17.3, cond:5.35, turb:61.4, DO:0.56, redox:-76 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:48, DTW:61.13, pH:7.2, temp:17.2, cond:5.35, turb:39.4, DO:0.6, redox:-75.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:48                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 61.13                                                                           |
| pH                               | 7.2                                                                             |
| Conductivity (mS/cm)             | 5.35                                                                            |
| Turbidity (NTU)                  | 39.4                                                                            |
| Dissolved Oxygen (mg/L)          | 0.6                                                                             |
| Temperature (Degrees Celsius)    | 17.2                                                                            |
| Redox (ORP mV)                   | -75.1                                                                           |
| parameters                       | @10:48, DTW:61.13, pH:7.2, temp:17.2, cond:5.35, turb:39.4, DO:0.6, redox:-75.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 10:49   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 3       |

### **Sample Information**

|               |        |
|---------------|--------|
| Sample Time   | 10:50  |
| Color         | Cloudy |
| Notable odors | None   |

### **Well Information**

|                          |          |
|--------------------------|----------|
| Well Location            | MW-13-41 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature

Gary Asher

Signed 2019-06-10 15:09:35 UTC

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## 2019-06-06, MW-13-43, MW-13-43

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-06 09:13:48 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-06 09:59:09 EDT by Christine Gregg   |
| Location                                                                                          | 42.7388463, -84.5860208                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-06                                   |
| Well Identification                                                                               | MW-13-43                                     |
| Well ID                                                                                           | MW-13-43                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Weather                                                                                           | Overcast, cool                               |

### Evacuation Details

|                                                                                                                                                                                                                                                           |                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing      |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2                  |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 65.6               |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 81.2               |
| Water Column                                                                                                                                                                                                                                              | 15.600000000000009 |
| Gallons in Well                                                                                                                                                                                                                                           | 2.53               |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                    |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow           |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder            |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow           |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 75                 |
| Purge Start                                                                                                                                                                                                                                               | 09:10              |

### @09:20, DTW:65.7, pH:7.5, temp:14.9, cond:1.22, turb:9.46, DO:4.51, redox:135.5

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 09:20                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 65.7                                                                            |
| Milliliters Purged (total)    | 1000                                                                            |
| pH                            | 7.5                                                                             |
| Conductivity (mS/cm)          | 1.22                                                                            |
| Turbidity (NTU)               | 9.46                                                                            |
| Dissolved Oxygen (mg/L)       | 4.51                                                                            |
| Temperature (Degrees Celsius) | 14.9                                                                            |
| Redox (ORP mV)                | 135.5                                                                           |
| parameters                    | @09:20, DTW:65.7, pH:7.5, temp:14.9, cond:1.22, turb:9.46, DO:4.51, redox:135.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:25, DTW:65.7, pH:7, temp:14.9, cond:1.73, turb:2.1, DO:2.11, redox:125.6

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 09:25                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 65.7                                                                         |
| Milliliters Purged (total)       | 1000                                                                         |
| pH                               | 7                                                                            |
| Conductivity (mS/cm)             | 1.73                                                                         |
| Turbidity (NTU)                  | 2.1                                                                          |
| Dissolved Oxygen (mg/L)          | 2.11                                                                         |
| Temperature (Degrees Celsius)    | 14.9                                                                         |
| Redox (ORP mV)                   | 125.6                                                                        |
| parameters                       | @09:25, DTW:65.7, pH:7, temp:14.9, cond:1.73, turb:2.1, DO:2.11, redox:125.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:30, DTW:65.7, pH:6.88, temp:15, cond:2.12, turb:0.02, DO:1.08, redox:103.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 09:30                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 65.7                                                                           |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 6.88                                                                           |
| Conductivity (mS/cm)             | 2.12                                                                           |
| Turbidity (NTU)                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)          | 1.08                                                                           |
| Temperature (Degrees Celsius)    | 15                                                                             |
| Redox (ORP mV)                   | 103.1                                                                          |
| parameters                       | @09:30, DTW:65.7, pH:6.88, temp:15, cond:2.12, turb:0.02, DO:1.08, redox:103.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:35, DTW:65.7, pH:6.89, temp:14.8, cond:2.27, turb:0.02, DO:0.52, redox:83.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.7                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 6.89                                                                            |
| Conductivity (mS/cm)             | 2.27                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.52                                                                            |
| Temperature (Degrees Celsius)    | 14.8                                                                            |
| Redox (ORP mV)                   | 83.3                                                                            |
| parameters                       | @09:35, DTW:65.7, pH:6.89, temp:14.8, cond:2.27, turb:0.02, DO:0.52, redox:83.3 |



Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:40, DTW:65.7, pH:6.85, temp:14.9, cond:2.68, turb:0.02, DO:0.39, redox:77.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.7                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 6.85                                                                            |
| Conductivity (mS/cm)             | 2.68                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.39                                                                            |
| Temperature (Degrees Celsius)    | 14.9                                                                            |
| Redox (ORP mV)                   | 77.1                                                                            |
| parameters                       | @09:40, DTW:65.7, pH:6.85, temp:14.9, cond:2.68, turb:0.02, DO:0.39, redox:77.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:45, DTW:65.7, pH:6.86, temp:14.9, cond:2.78, turb:0.02, DO:0.34, redox:71**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 65.7                                                                          |
| Milliliters Purged (total)       | 1000                                                                          |
| pH                               | 6.86                                                                          |
| Conductivity (mS/cm)             | 2.78                                                                          |
| Turbidity (NTU)                  | 0.02                                                                          |
| Dissolved Oxygen (mg/L)          | 0.34                                                                          |
| Temperature (Degrees Celsius)    | 14.9                                                                          |
| Redox (ORP mV)                   | 71                                                                            |
| parameters                       | @09:45, DTW:65.7, pH:6.86, temp:14.9, cond:2.78, turb:0.02, DO:0.34, redox:71 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:50, DTW:65.7, pH:6.87, temp:14.8, cond:2.8, turb:0.02, DO:0.26, redox:64.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.7  |
| Milliliters Purged (total)       | 1000  |
| pH                               | 6.87  |
| Conductivity (mS/cm)             | 2.8   |
| Turbidity (NTU)                  | 0.02  |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.26                                                                           |
| Temperature (Degrees Celsius) | 14.8                                                                           |
| Redox (ORP mV)                | 64.5                                                                           |
| parameters                    | @09:50, DTW:65.7, pH:6.87, temp:14.8, cond:2.8, turb:0.02, DO:0.26, redox:64.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:55, DTW:65.7, pH:6.88, temp:15, cond:2.8, turb:0.02, DO:0.24, redox:60.8

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 09:55                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 65.7                                                                         |
| Milliliters Purged (total)       | 1000                                                                         |
| pH                               | 6.88                                                                         |
| Conductivity (mS/cm)             | 2.8                                                                          |
| Turbidity (NTU)                  | 0.02                                                                         |
| Dissolved Oxygen (mg/L)          | 0.24                                                                         |
| Temperature (Degrees Celsius)    | 15                                                                           |
| Redox (ORP mV)                   | 60.8                                                                         |
| parameters                       | @09:55, DTW:65.7, pH:6.88, temp:15, cond:2.8, turb:0.02, DO:0.24, redox:60.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:00, DTW:65.7, pH:6.88, temp:15, cond:2.8, turb:0.02, DO:0.23, redox:58.9

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 10:00                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 65.7                                                                         |
| Milliliters Purged (total)       | 1000                                                                         |
| pH                               | 6.88                                                                         |
| Conductivity (mS/cm)             | 2.8                                                                          |
| Turbidity (NTU)                  | 0.02                                                                         |
| Dissolved Oxygen (mg/L)          | 0.23                                                                         |
| Temperature (Degrees Celsius)    | 15                                                                           |
| Redox (ORP mV)                   | 58.9                                                                         |
| parameters                       | @10:00, DTW:65.7, pH:6.88, temp:15, cond:2.8, turb:0.02, DO:0.23, redox:58.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 10:00       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 10000       |
| Well Volumes Purged           | 1.04        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:05 |
| Color         | Clear |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to be 'A.P.' followed by a flourish.

Signed 2019-06-06 13:15:40 UTC

## 2019-12-04, MW-13-43

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-04 13:41:22 UTC by Heather Woodrum |
| Updated                                                                                           | 2019-12-04 14:25:14 UTC by Heather Woodrum |
| Location                                                                                          | 42.7388076950263, -84.5859710779829        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Heather Woodrum                            |
| Date                                                                                              | 2019-12-04                                 |
| Well ID                                                                                           | MW-13-43                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cold, overcast                             |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 63.94         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 79            |
| Water Column                                                                                                                                                                                                                                                 | 15.06         |
| Gallons in Well                                                                                                                                                                                                                                              | 2.45          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 75            |
| Purge Start                                                                                                                                                                                                                                                  | 08:55         |

### @09:05, DTW:64.5, pH:7.17, temp:12, cond:2.15, turb:3.07, DO:0.62, redox:-86

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Reading Time                  | 09:05                                                                        |
| Rate (mL/min)                 | 200                                                                          |
| Depth to Water (ft)           | 64.5                                                                         |
| pH                            | 7.17                                                                         |
| Conductivity (mS/cm)          | 2.15                                                                         |
| Turbidity (NTU)               | 3.07                                                                         |
| Dissolved Oxygen (mg/L)       | 0.62                                                                         |
| Temperature (Degrees Celsius) | 12                                                                           |
| Redox (ORP mV)                | -86                                                                          |
| parameters                    | @09:05, DTW:64.5, pH:7.17, temp:12, cond:2.15, turb:3.07, DO:0.62, redox:-86 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:10, DTW:64.5, pH:7.05, temp:11.9, cond:2.5, turb:2.2, DO:0.65, redox:-62.8

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:10 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 64.5                                                                           |
| pH                            | 7.05                                                                           |
| Conductivity (mS/cm)          | 2.5                                                                            |
| Turbidity (NTU)               | 2.2                                                                            |
| Dissolved Oxygen (mg/L)       | 0.65                                                                           |
| Temperature (Degrees Celsius) | 11.9                                                                           |
| Redox (ORP mV)                | -62.8                                                                          |
| parameters                    | @09:10, DTW:64.5, pH:7.05, temp:11.9, cond:2.5, turb:2.2, DO:0.65, redox:-62.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:15, DTW:64.5, pH:7.03, temp:12, cond:2.58, turb:3.42, DO:0.35, redox:-60.2**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 09:15                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 64.5                                                                           |
| pH                               | 7.03                                                                           |
| Conductivity (mS/cm)             | 2.58                                                                           |
| Turbidity (NTU)                  | 3.42                                                                           |
| Dissolved Oxygen (mg/L)          | 0.35                                                                           |
| Temperature (Degrees Celsius)    | 12                                                                             |
| Redox (ORP mV)                   | -60.2                                                                          |
| parameters                       | @09:15, DTW:64.5, pH:7.03, temp:12, cond:2.58, turb:3.42, DO:0.35, redox:-60.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:20, DTW:64.5, pH:7.02, temp:11.8, cond:2.57, turb:3.43, DO:0.34, redox:-59.9**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 64.5                                                                             |
| pH                               | 7.02                                                                             |
| Conductivity (mS/cm)             | 2.57                                                                             |
| Turbidity (NTU)                  | 3.43                                                                             |
| Dissolved Oxygen (mg/L)          | 0.34                                                                             |
| Temperature (Degrees Celsius)    | 11.8                                                                             |
| Redox (ORP mV)                   | -59.9                                                                            |
| parameters                       | @09:20, DTW:64.5, pH:7.02, temp:11.8, cond:2.57, turb:3.43, DO:0.34, redox:-59.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:25, DTW:64.5, pH:7.02, temp:11.7, cond:2.57, turb:2.92, DO:0.36, redox:-59.9**

|              |       |
|--------------|-------|
| Reading Time | 09:25 |
|--------------|-------|

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                                |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 200                                                                              |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 64.5                                                                             |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.02                                                                             |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 2.57                                                                             |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 2.92                                                                             |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.36                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 11.7                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -59.9                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @09:25, DTW:64.5, pH:7.02, temp:11.7, cond:2.57, turb:2.92, DO:0.36, redox:-59.9 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 09:25                                                                            |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 09:30 |
| Color         | Clear |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of stylized, overlapping loops and strokes, likely representing the initials 'ML' followed by a flourish.

Signed 2019-12-04 13:54:54 UTC

---

## 2019-06-06, MW-13-44, MW-13-44

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-06 10:35:26 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-06 11:11:35 EDT by Christine Gregg   |
| Location                                                                                          | 42.7387863, -84.585979                       |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-06                                   |
| Well Identification                                                                               | MW-13-44                                     |
| Well ID                                                                                           | MW-13-44                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Replicate No. (e.g. Dup)                                                                          | Dup-04                                       |
| Weather                                                                                           | Overcast, warm                               |

### Evacuation Details

|                                                                                                                                                                                                                                                        |                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing     |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 4                 |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 73.92             |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 122.1             |
| Water Column                                                                                                                                                                                                                                           | 48.17999999999999 |
| Gallons in Well                                                                                                                                                                                                                                        | 31.32             |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                   |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow          |
| Type of Equipment used                                                                                                                                                                                                                                 | Bladder           |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow          |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 110               |
| Purge Start                                                                                                                                                                                                                                            | 10:30             |

### @10:40, DTW:73.92, pH:7.18, temp:17.4, cond:1.52, turb:0.84, DO:2.43, redox:68.6

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 10:40                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 73.92                                                                            |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 7.18                                                                             |
| Conductivity (mS/cm)          | 1.52                                                                             |
| Turbidity (NTU)               | 0.84                                                                             |
| Dissolved Oxygen (mg/L)       | 2.43                                                                             |
| Temperature (Degrees Celsius) | 17.4                                                                             |
| Redox (ORP mV)                | 68.6                                                                             |
| parameters                    | @10:40, DTW:73.92, pH:7.18, temp:17.4, cond:1.52, turb:0.84, DO:2.43, redox:68.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit



**@10:45, DTW:43.92, pH:7.13, temp:16.1, cond:1.49, turb:0.02, DO:1.08, redox:68.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 43.92                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.13                                                                             |
| Conductivity (mS/cm)             | 1.49                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 1.08                                                                             |
| Temperature (Degrees Celsius)    | 16.1                                                                             |
| Redox (ORP mV)                   | 68.2                                                                             |
| parameters                       | @10:45, DTW:43.92, pH:7.13, temp:16.1, cond:1.49, turb:0.02, DO:1.08, redox:68.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:50, DTW:73.92, pH:7.13, temp:16.2, cond:1.48, turb:0.02, DO:0.77, redox:73.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:50                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 73.92                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.13                                                                             |
| Conductivity (mS/cm)             | 1.48                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.77                                                                             |
| Temperature (Degrees Celsius)    | 16.2                                                                             |
| Redox (ORP mV)                   | 73.7                                                                             |
| parameters                       | @10:50, DTW:73.92, pH:7.13, temp:16.2, cond:1.48, turb:0.02, DO:0.77, redox:73.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:55, DTW:73.92, pH:7.13, temp:16.1, cond:1.49, turb:0.02, DO:0.65, redox:75.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 73.92 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7.13  |
| Conductivity (mS/cm)             | 1.49  |
| Turbidity (NTU)                  | 0.02  |
| Dissolved Oxygen (mg/L)          | 0.65  |
| Temperature (Degrees Celsius)    | 16.1  |
| Redox (ORP mV)                   | 75.7  |

parameters

@10:55, DTW:73.92, pH:7.13, temp:16.1, cond:1.49, turb:0.02, DO:0.65, redox:75.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:00, DTW:73.92, pH:7.13, temp:16.3, cond:1.48, turb:0.02, DO:0.52, redox:79.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 73.92 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7.13  |
| Conductivity (mS/cm)             | 1.48  |
| Turbidity (NTU)                  | 0.02  |
| Dissolved Oxygen (mg/L)          | 0.52  |
| Temperature (Degrees Celsius)    | 16.3  |
| Redox (ORP mV)                   | 79.4  |

parameters

@11:00, DTW:73.92, pH:7.13, temp:16.3, cond:1.48, turb:0.02, DO:0.52, redox:79.4

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:05, DTW:73.92, pH:7.13, temp:16.5, cond:1.48, turb:0.02, DO:0.5, redox:80.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 73.92 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7.13  |
| Conductivity (mS/cm)             | 1.48  |
| Turbidity (NTU)                  | 0.02  |
| Dissolved Oxygen (mg/L)          | 0.5   |
| Temperature (Degrees Celsius)    | 16.5  |
| Redox (ORP mV)                   | 80.5  |

parameters

@11:05, DTW:73.92, pH:7.13, temp:16.5, cond:1.48, turb:0.02, DO:0.5, redox:80.5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:10, DTW:73.92, pH:7.13, temp:16.6, cond:1.48, turb:0.02, DO:0.47, redox:81.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 73.92 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7.13  |
| Conductivity (mS/cm)             | 1.48  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.47                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 16.6                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 81.7                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @11:10, DTW:73.92, pH:7.13, temp:16.6, cond:1.48, turb:0.02, DO:0.47, redox:81.7 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 11:10                                                                            |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                      |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6000                                                                             |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.05                                                                             |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:15 |
| Color         | Clear |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |
| Signature                |         |



Signed 2019-06-06 14:37:24 UTC

## 2019-06-05, MW-13-45, MW-13-45

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-05 14:20:02 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-05 15:13:53 EDT by Christine Gregg   |
| Location                                                                                          | 42.7387146, -84.5851088                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-05                                   |
| Well Identification                                                                               | MW-13-45                                     |
| Well ID                                                                                           | MW-13-45                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Weather                                                                                           | Sunny, warm                                  |

### Evacuation Details

|                                                                                                                                                                                                                                                           |                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing      |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2                  |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 62.14              |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 78.4               |
| Water Column                                                                                                                                                                                                                                              | 16.260000000000005 |
| Gallons in Well                                                                                                                                                                                                                                           | 2.64               |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                    |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow           |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder            |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow           |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 75                 |
| Purge Start                                                                                                                                                                                                                                               | 14:30              |

### @14:40, DTW:64.3, pH:7.24, temp:19.3, cond:1.03, turb:0.02, DO:0.44, redox:42.2

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 14:40                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 64.3                                                                            |
| Milliliters Purged (total)    | 1000                                                                            |
| pH                            | 7.24                                                                            |
| Conductivity (mS/cm)          | 1.03                                                                            |
| Turbidity (NTU)               | 0.02                                                                            |
| Dissolved Oxygen (mg/L)       | 0.44                                                                            |
| Temperature (Degrees Celsius) | 19.3                                                                            |
| Redox (ORP mV)                | 42.2                                                                            |
| parameters                    | @14:40, DTW:64.3, pH:7.24, temp:19.3, cond:1.03, turb:0.02, DO:0.44, redox:42.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:45, DTW:64.3, pH:7.22, temp:19.5, cond:1.03, turb:0.02, DO:0.25, redox:11.6

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 64.3                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.22                                                                            |
| Conductivity (mS/cm)             | 1.03                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.25                                                                            |
| Temperature (Degrees Celsius)    | 19.5                                                                            |
| Redox (ORP mV)                   | 11.6                                                                            |
| parameters                       | @14:45, DTW:64.3, pH:7.22, temp:19.5, cond:1.03, turb:0.02, DO:0.25, redox:11.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:50, DTW:64.3, pH:7.22, temp:19.1, cond:1.03, turb:0.02, DO:0.25, redox:-5.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:50                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 64.3                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.22                                                                            |
| Conductivity (mS/cm)             | 1.03                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.25                                                                            |
| Temperature (Degrees Celsius)    | 19.1                                                                            |
| Redox (ORP mV)                   | -5.7                                                                            |
| parameters                       | @14:50, DTW:64.3, pH:7.22, temp:19.1, cond:1.03, turb:0.02, DO:0.25, redox:-5.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:55, DTW:64.3, pH:7.21, temp:19.5, cond:1.03, turb:0.02, DO:0.21, redox:-27.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 64.3                                                                             |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.21                                                                             |
| Conductivity (mS/cm)             | 1.03                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.21                                                                             |
| Temperature (Degrees Celsius)    | 19.5                                                                             |
| Redox (ORP mV)                   | -27.2                                                                            |
| parameters                       | @14:55, DTW:64.3, pH:7.21, temp:19.5, cond:1.03, turb:0.02, DO:0.21, redox:-27.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:00, DTW:64.3, pH:7.2, temp:19.2, cond:1.03, turb:0.02, DO:0.17, redox:-42.9

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 64.3                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.2                                                                             |
| Conductivity (mS/cm)             | 1.03                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.17                                                                            |
| Temperature (Degrees Celsius)    | 19.2                                                                            |
| Redox (ORP mV)                   | -42.9                                                                           |
| parameters                       | @15:00, DTW:64.3, pH:7.2, temp:19.2, cond:1.03, turb:0.02, DO:0.17, redox:-42.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:05, DTW:64.3, pH:7.2, temp:19.3, cond:1.03, turb:0.02, DO:0.16, redox:-50.1

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:05                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 64.3                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.2                                                                             |
| Conductivity (mS/cm)             | 1.03                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.16                                                                            |
| Temperature (Degrees Celsius)    | 19.3                                                                            |
| Redox (ORP mV)                   | -50.1                                                                           |
| parameters                       | @15:05, DTW:64.3, pH:7.2, temp:19.3, cond:1.03, turb:0.02, DO:0.16, redox:-50.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:10, DTW:64.3, pH:7.2, temp:19.1, cond:1.03, turb:0.02, DO:0.15, redox:-54.2

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 64.3  |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7.2   |
| Conductivity (mS/cm)             | 1.03  |
| Turbidity (NTU)                  | 0.02  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.15                                                                            |
| Temperature (Degrees Celsius) | 19.1                                                                            |
| Redox (ORP mV)                | -54.2                                                                           |
| parameters                    | @15:10, DTW:64.3, pH:7.2, temp:19.1, cond:1.03, turb:0.02, DO:0.15, redox:-54.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:15, DTW:64.3, pH:7.21, temp:17.6, cond:1.03, turb:0.02, DO:0.14, redox:-56.5

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 64.3                                                                             |
| Milliliters Purged (total)       | 200                                                                              |
| pH                               | 7.21                                                                             |
| Conductivity (mS/cm)             | 1.03                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.14                                                                             |
| Temperature (Degrees Celsius)    | 17.6                                                                             |
| Redox (ORP mV)                   | -56.5                                                                            |
| parameters                       | @15:15, DTW:64.3, pH:7.21, temp:17.6, cond:1.03, turb:0.02, DO:0.14, redox:-56.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 15:15       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 9000        |
| Well Volumes Purged           | 0.9         |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:20 |
| Color         | Clear |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of stylized, cursive letters that appear to be 'H. P.' followed by a long, sweeping horizontal stroke.

Signed 2019-06-05 18:21:54 UTC

---



## 2019-06-06, MW-13-46, MW-13-46

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 13:16:49 EDT by Donald Richmond |
| Updated                                                                                           | 2019-06-06 14:29:33 EDT by Christine Gregg |
| Location                                                                                          | 42.741369, -84.58790143                    |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-13-46                                   |
| Well ID                                                                                           | MW-13-46                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | 67 sunny                                   |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 60.25         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder       |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                | 13:15         |

### @13:25, DTW:65.8, pH:6.57, temp:21.5, cond:2.14, turb:60.5, DO:1.21, redox:-72.7

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 13:25                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 65.8                                                                             |
| pH                            | 6.57                                                                             |
| Conductivity (mS/cm)          | 2.14                                                                             |
| Turbidity (NTU)               | 60.5                                                                             |
| Dissolved Oxygen (mg/L)       | 1.21                                                                             |
| Temperature (Degrees Celsius) | 21.5                                                                             |
| Redox (ORP mV)                | -72.7                                                                            |
| parameters                    | @13:25, DTW:65.8, pH:6.57, temp:21.5, cond:2.14, turb:60.5, DO:1.21, redox:-72.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:30, DTW:65.8, pH:6.56, temp:21.3, cond:2.15, turb:48.5, DO:0.95, redox:-66.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 6.56  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 2.15                                                                             |
| Turbidity (NTU)               | 48.5                                                                             |
| Dissolved Oxygen (mg/L)       | 0.95                                                                             |
| Temperature (Degrees Celsius) | 21.3                                                                             |
| Redox (ORP mV)                | -66.7                                                                            |
| parameters                    | @13:30, DTW:65.8, pH:6.56, temp:21.3, cond:2.15, turb:48.5, DO:0.95, redox:-66.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:35, DTW:65.8, pH:6.55, temp:22.5, cond:2.14, turb:37, DO:0.7, redox:-67.2**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 65.8                                                                          |
| pH                               | 6.55                                                                          |
| Conductivity (mS/cm)             | 2.14                                                                          |
| Turbidity (NTU)                  | 37                                                                            |
| Dissolved Oxygen (mg/L)          | 0.7                                                                           |
| Temperature (Degrees Celsius)    | 22.5                                                                          |
| Redox (ORP mV)                   | -67.2                                                                         |
| parameters                       | @13:35, DTW:65.8, pH:6.55, temp:22.5, cond:2.14, turb:37, DO:0.7, redox:-67.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:65.8, pH:6.57, temp:19.3, cond:2.15, turb:32.3, DO:0.63, redox:-63**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 65.8                                                                           |
| pH                               | 6.57                                                                           |
| Conductivity (mS/cm)             | 2.15                                                                           |
| Turbidity (NTU)                  | 32.3                                                                           |
| Dissolved Oxygen (mg/L)          | 0.63                                                                           |
| Temperature (Degrees Celsius)    | 19.3                                                                           |
| Redox (ORP mV)                   | -63                                                                            |
| parameters                       | @13:40, DTW:65.8, pH:6.57, temp:19.3, cond:2.15, turb:32.3, DO:0.63, redox:-63 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:45, DTW:65.8, pH:6.54, temp:19.3, cond:2.13, turb:27.1, DO:0.32, redox:-62.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |

|                               |       |
|-------------------------------|-------|
| pH                            | 6.54  |
| Conductivity (mS/cm)          | 2.13  |
| Turbidity (NTU)               | 27.1  |
| Dissolved Oxygen (mg/L)       | 0.32  |
| Temperature (Degrees Celsius) | 19.3  |
| Redox (ORP mV)                | -62.8 |

parameters @13:45, DTW:65.8, pH:6.54, temp:19.3, cond:2.13, turb:27.1, DO:0.32, redox:-62.8

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:50, DTW:65.8, pH:6.55, temp:20.2, cond:2.14, turb:24.2, DO:0.26, redox:-64.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 6.55  |
| Conductivity (mS/cm)             | 2.14  |
| Turbidity (NTU)                  | 24.2  |
| Dissolved Oxygen (mg/L)          | 0.26  |
| Temperature (Degrees Celsius)    | 20.2  |
| Redox (ORP mV)                   | -64.6 |

parameters @13:50, DTW:65.8, pH:6.55, temp:20.2, cond:2.14, turb:24.2, DO:0.26, redox:-64.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:55, DTW:65.8, pH:6.55, temp:20, cond:2.17, turb:21.7, DO:0.31, redox:-66.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 6.55  |
| Conductivity (mS/cm)             | 2.17  |
| Turbidity (NTU)                  | 21.7  |
| Dissolved Oxygen (mg/L)          | 0.31  |
| Temperature (Degrees Celsius)    | 20    |
| Redox (ORP mV)                   | -66.1 |

parameters @13:55, DTW:65.8, pH:6.55, temp:20, cond:2.17, turb:21.7, DO:0.31, redox:-66.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:00, DTW:65.8, pH:6.55, temp:20.3, cond:2.18, turb:19, DO:0.24, redox:-67.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Depth to Water (ft)           | 65.8                                                                           |
| pH                            | 6.55                                                                           |
| Conductivity (mS/cm)          | 2.18                                                                           |
| Turbidity (NTU)               | 19                                                                             |
| Dissolved Oxygen (mg/L)       | 0.24                                                                           |
| Temperature (Degrees Celsius) | 20.3                                                                           |
| Redox (ORP mV)                | -67.3                                                                          |
| parameters                    | @14:00, DTW:65.8, pH:6.55, temp:20.3, cond:2.18, turb:19, DO:0.24, redox:-67.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:05, DTW:65.8, pH:6.55, temp:20.1, cond:2.19, turb:20, DO:0.22, redox:-67.7**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:05                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 65.8                                                                           |
| pH                               | 6.55                                                                           |
| Conductivity (mS/cm)             | 2.19                                                                           |
| Turbidity (NTU)                  | 20                                                                             |
| Dissolved Oxygen (mg/L)          | 0.22                                                                           |
| Temperature (Degrees Celsius)    | 20.1                                                                           |
| Redox (ORP mV)                   | -67.7                                                                          |
| parameters                       | @14:05, DTW:65.8, pH:6.55, temp:20.1, cond:2.19, turb:20, DO:0.22, redox:-67.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:10, DTW:65.8, pH:6.56, temp:20.4, cond:2.21, turb:21.6, DO:0.21, redox:-69.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.8                                                                             |
| pH                               | 6.56                                                                             |
| Conductivity (mS/cm)             | 2.21                                                                             |
| Turbidity (NTU)                  | 21.6                                                                             |
| Dissolved Oxygen (mg/L)          | 0.21                                                                             |
| Temperature (Degrees Celsius)    | 20.4                                                                             |
| Redox (ORP mV)                   | -69.4                                                                            |
| parameters                       | @14:10, DTW:65.8, pH:6.56, temp:20.4, cond:2.21, turb:21.6, DO:0.21, redox:-69.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:15, DTW:65.8, pH:6.55, temp:20.6, cond:2.21, turb:21.1, DO:0.19, redox:-70.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:15 |
| Minutes Elapsed between readings | 5     |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 200                                                                              |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 65.8                                                                             |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.55                                                                             |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 2.21                                                                             |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 21.1                                                                             |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.19                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 20.6                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -70.3                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @14:15, DTW:65.8, pH:6.55, temp:20.6, cond:2.21, turb:21.1, DO:0.19, redox:-70.3 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 14:15                                                                            |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Gallons                                                                          |
| Total Gallons Purged                                                                                                                                                                                                                                                                                                                             | 2                                                                                |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:15 |
| Color         | None  |
| Notable odors | None  |

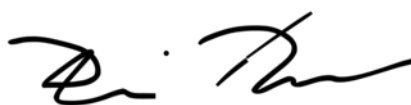
## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to be 'D. Th' or similar, written in a cursive style.

Signed 2019-06-06 17:21:22 UTC

---

## 2019-08-28, MW-13-46, MW-13-46

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-08-28 12:54:05 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-08-28 14:06:46 EDT by Christine Gregg |
| Location                                                                                          | 42.74131367, -84.58776958                  |
| Project Number                                                                                    | 30006870.1234                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-08-28                                 |
| Well Identification                                                                               | MW-13-46                                   |
| Well ID                                                                                           | MW-13-46                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Partly Cloudy, Windy, 70's                 |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 59.9          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 74.65         |
| Water Column                                                                                                                                                                                                                                              | 14.75         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.4           |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 72            |
| Purge Start                                                                                                                                                                                                                                               | 12:50         |

### @12:50, DTW:59.9, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 12:50                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 59.9                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @12:50, DTW:59.9, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:55, DTW:60.23, pH:6.48, temp:17.9, cond:2.13, turb:94.3, DO:0.51, redox:23.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 60.23 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.48  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 2.13                                                                             |
| Turbidity (NTU)               | 94.3                                                                             |
| Dissolved Oxygen (mg/L)       | 0.51                                                                             |
| Temperature (Degrees Celsius) | 17.9                                                                             |
| Redox (ORP mV)                | 23.3                                                                             |
| parameters                    | @12:55, DTW:60.23, pH:6.48, temp:17.9, cond:2.13, turb:94.3, DO:0.51, redox:23.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:00, DTW:60.27, pH:6.47, temp:19.1, cond:2.11, turb:103, DO:0.46, redox:17.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 60.27                                                                           |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 6.47                                                                            |
| Conductivity (mS/cm)             | 2.11                                                                            |
| Turbidity (NTU)                  | 103                                                                             |
| Dissolved Oxygen (mg/L)          | 0.46                                                                            |
| Temperature (Degrees Celsius)    | 19.1                                                                            |
| Redox (ORP mV)                   | 17.4                                                                            |
| parameters                       | @13:00, DTW:60.27, pH:6.47, temp:19.1, cond:2.11, turb:103, DO:0.46, redox:17.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:05, DTW:60.25, pH:6.5, temp:20.7, cond:2.09, turb:99.4, DO:0.53, redox:6.6**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:05                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 60.25                                                                          |
| Milliliters Purged (total)       | 1500                                                                           |
| pH                               | 6.5                                                                            |
| Conductivity (mS/cm)             | 2.09                                                                           |
| Turbidity (NTU)                  | 99.4                                                                           |
| Dissolved Oxygen (mg/L)          | 0.53                                                                           |
| Temperature (Degrees Celsius)    | 20.7                                                                           |
| Redox (ORP mV)                   | 6.6                                                                            |
| parameters                       | @13:05, DTW:60.25, pH:6.5, temp:20.7, cond:2.09, turb:99.4, DO:0.53, redox:6.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:10, DTW:60.25, pH:6.57, temp:20.9, cond:2.11, turb:81.1, DO:0.51, redox:-5.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:10 |
| Minutes Elapsed between readings | 5     |



|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 60.25                                                                            |
| Milliliters Purged (total)    | 2000                                                                             |
| pH                            | 6.57                                                                             |
| Conductivity (mS/cm)          | 2.11                                                                             |
| Turbidity (NTU)               | 81.1                                                                             |
| Dissolved Oxygen (mg/L)       | 0.51                                                                             |
| Temperature (Degrees Celsius) | 20.9                                                                             |
| Redox (ORP mV)                | -5.4                                                                             |
| parameters                    | @13:10, DTW:60.25, pH:6.57, temp:20.9, cond:2.11, turb:81.1, DO:0.51, redox:-5.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:15, DTW:60.23, pH:6.56, temp:21.1, cond:2.12, turb:66.4, DO:0.48, redox:-11.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 60.23                                                                             |
| Milliliters Purged (total)       | 2500                                                                              |
| pH                               | 6.56                                                                              |
| Conductivity (mS/cm)             | 2.12                                                                              |
| Turbidity (NTU)                  | 66.4                                                                              |
| Dissolved Oxygen (mg/L)          | 0.48                                                                              |
| Temperature (Degrees Celsius)    | 21.1                                                                              |
| Redox (ORP mV)                   | -11.4                                                                             |
| parameters                       | @13:15, DTW:60.23, pH:6.56, temp:21.1, cond:2.12, turb:66.4, DO:0.48, redox:-11.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:20, DTW:60.23, pH:6.55, temp:21.1, cond:2.14, turb:46.2, DO:0.49, redox:-18.3**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 60.23                                                                             |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 6.55                                                                              |
| Conductivity (mS/cm)             | 2.14                                                                              |
| Turbidity (NTU)                  | 46.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.49                                                                              |
| Temperature (Degrees Celsius)    | 21.1                                                                              |
| Redox (ORP mV)                   | -18.3                                                                             |
| parameters                       | @13:20, DTW:60.23, pH:6.55, temp:21.1, cond:2.14, turb:46.2, DO:0.49, redox:-18.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:25, DTW:60.23, pH:6.56, temp:21, cond:2.16, turb:31.9, DO:0.43, redox:-22.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 60.23                                                                           |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 6.56                                                                            |
| Conductivity (mS/cm)             | 2.16                                                                            |
| Turbidity (NTU)                  | 31.9                                                                            |
| Dissolved Oxygen (mg/L)          | 0.43                                                                            |
| Temperature (Degrees Celsius)    | 21                                                                              |
| Redox (ORP mV)                   | -22.2                                                                           |
| parameters                       | @13:25, DTW:60.23, pH:6.56, temp:21, cond:2.16, turb:31.9, DO:0.43, redox:-22.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:30, DTW:60.23, pH:6.54, temp:20.6, cond:2.17, turb:20.2, DO:0.42, redox:-25.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:30                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 60.23                                                                             |
| Milliliters Purged (total)       | 4000                                                                              |
| pH                               | 6.54                                                                              |
| Conductivity (mS/cm)             | 2.17                                                                              |
| Turbidity (NTU)                  | 20.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.42                                                                              |
| Temperature (Degrees Celsius)    | 20.6                                                                              |
| Redox (ORP mV)                   | -25.2                                                                             |
| parameters                       | @13:30, DTW:60.23, pH:6.54, temp:20.6, cond:2.17, turb:20.2, DO:0.42, redox:-25.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:35, DTW:60.23, pH:6.53, temp:20.2, cond:2.18, turb:15.3, DO:0.39, redox:-27.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 60.23 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.53  |
| Conductivity (mS/cm)             | 2.18  |
| Turbidity (NTU)                  | 15.3  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.39                                                                              |
| Temperature (Degrees Celsius) | 20.2                                                                              |
| Redox (ORP mV)                | -27.1                                                                             |
| parameters                    | @13:35, DTW:60.23, pH:6.53, temp:20.2, cond:2.18, turb:15.3, DO:0.39, redox:-27.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:60.23, pH:6.53, temp:20.3, cond:2.18, turb:9.86, DO:0.39, redox:-27.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 60.23                                                                             |
| Milliliters Purged (total)       | 5000                                                                              |
| pH                               | 6.53                                                                              |
| Conductivity (mS/cm)             | 2.18                                                                              |
| Turbidity (NTU)                  | 9.86                                                                              |
| Dissolved Oxygen (mg/L)          | 0.39                                                                              |
| Temperature (Degrees Celsius)    | 20.3                                                                              |
| Redox (ORP mV)                   | -27.4                                                                             |
| parameters                       | @13:40, DTW:60.23, pH:6.53, temp:20.3, cond:2.18, turb:9.86, DO:0.39, redox:-27.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:45, DTW:60.22, pH:6.52, temp:20.4, cond:2.18, turb:9.64, DO:0.37, redox:-27.6**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:45                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 60.22                                                                             |
| Milliliters Purged (total)       | 5500                                                                              |
| pH                               | 6.52                                                                              |
| Conductivity (mS/cm)             | 2.18                                                                              |
| Turbidity (NTU)                  | 9.64                                                                              |
| Dissolved Oxygen (mg/L)          | 0.37                                                                              |
| Temperature (Degrees Celsius)    | 20.4                                                                              |
| Redox (ORP mV)                   | -27.6                                                                             |
| parameters                       | @13:45, DTW:60.22, pH:6.52, temp:20.4, cond:2.18, turb:9.64, DO:0.37, redox:-27.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:50, DTW:60.22, pH:6.52, temp:20.4, cond:2.18, turb:9.31, DO:0.37, redox:-28.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 60.22 |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Milliliters Purged (total)                                                                                                                                                                                                                                                                                                                       | 6000                                                                              |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.52                                                                              |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 2.18                                                                              |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 9.31                                                                              |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.37                                                                              |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 20.4                                                                              |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -28.2                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @13:50, DTW:60.22, pH:6.52, temp:20.4, cond:2.18, turb:9.31, DO:0.37, redox:-28.2 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                   |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 13:50                                                                             |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                       |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6000                                                                              |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.66                                                                              |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:50 |
| Color         | Clear |
| Notable odors | No    |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Photo of Well



Signature

304/h

Signed 2019-08-28 16:56:17 UTC

## 2019-12-06, MW-13-46

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-06 16:38:59 UTC by Billy Cobern |
| Updated                                                                                           | 2019-12-06 17:31:47 UTC by Billy Cobern |
| Location                                                                                          | 42.741338778327, -84.5878150966806      |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-12-06                              |
| Well ID                                                                                           | MW-13-46                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Cloudy, windy, 30's                     |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 58.84         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 74.6          |
| Water Column                                                                                                                                                                                                                                                 | 15.76         |
| Gallons in Well                                                                                                                                                                                                                                              | 2.56          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 72            |
| Purge Start                                                                                                                                                                                                                                                  | 11:30         |

### @11:30, DTW:58.84, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 11:30                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 58.84                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @11:30, DTW:58.84, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:35, DTW:59.15, pH:6.99, temp:11.2, cond:2.24, turb:141, DO:7.33, redox:152.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 59.15 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.99  |
| Conductivity (mS/cm)             | 2.24  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Turbidity (NTU)               | 141                                                                              |
| Dissolved Oxygen (mg/L)       | 7.33                                                                             |
| Temperature (Degrees Celsius) | 11.2                                                                             |
| Redox (ORP mV)                | 152.5                                                                            |
| parameters                    | @11:35, DTW:59.15, pH:6.99, temp:11.2, cond:2.24, turb:141, DO:7.33, redox:152.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:40, DTW:59.28, pH:6.73, temp:10.8, cond:2.22, turb:44.3, DO:1.48, redox:149.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:40                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 59.28                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 6.73                                                                              |
| Conductivity (mS/cm)             | 2.22                                                                              |
| Turbidity (NTU)                  | 44.3                                                                              |
| Dissolved Oxygen (mg/L)          | 1.48                                                                              |
| Temperature (Degrees Celsius)    | 10.8                                                                              |
| Redox (ORP mV)                   | 149.1                                                                             |
| parameters                       | @11:40, DTW:59.28, pH:6.73, temp:10.8, cond:2.22, turb:44.3, DO:1.48, redox:149.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:45, DTW:59.35, pH:6.71, temp:10.2, cond:2.2, turb:32.2, DO:1.1, redox:147.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 59.35                                                                           |
| Milliliters Purged (total)       | 1500                                                                            |
| pH                               | 6.71                                                                            |
| Conductivity (mS/cm)             | 2.2                                                                             |
| Turbidity (NTU)                  | 32.2                                                                            |
| Dissolved Oxygen (mg/L)          | 1.1                                                                             |
| Temperature (Degrees Celsius)    | 10.2                                                                            |
| Redox (ORP mV)                   | 147.5                                                                           |
| parameters                       | @11:45, DTW:59.35, pH:6.71, temp:10.2, cond:2.2, turb:32.2, DO:1.1, redox:147.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:50, DTW:59.43, pH:6.7, temp:9.9, cond:2.19, turb:31.2, DO:0.99, redox:146.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Depth to Water (ft)           | 59.43                                                                           |
| Milliliters Purged (total)    | 2000                                                                            |
| pH                            | 6.7                                                                             |
| Conductivity (mS/cm)          | 2.19                                                                            |
| Turbidity (NTU)               | 31.2                                                                            |
| Dissolved Oxygen (mg/L)       | 0.99                                                                            |
| Temperature (Degrees Celsius) | 9.9                                                                             |
| Redox (ORP mV)                | 146.3                                                                           |
| parameters                    | @11:50, DTW:59.43, pH:6.7, temp:9.9, cond:2.19, turb:31.2, DO:0.99, redox:146.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:55, DTW:59.49, pH:6.7, temp:9.5, cond:2.17, turb:23.3, DO:0.87, redox:141.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:55                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 59.49                                                                           |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 6.7                                                                             |
| Conductivity (mS/cm)             | 2.17                                                                            |
| Turbidity (NTU)                  | 23.3                                                                            |
| Dissolved Oxygen (mg/L)          | 0.87                                                                            |
| Temperature (Degrees Celsius)    | 9.5                                                                             |
| Redox (ORP mV)                   | 141.7                                                                           |
| parameters                       | @11:55, DTW:59.49, pH:6.7, temp:9.5, cond:2.17, turb:23.3, DO:0.87, redox:141.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:00, DTW:59.53, pH:6.68, temp:9.3, cond:2.17, turb:17.9, DO:0.76, redox:112.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 59.53                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 6.68                                                                             |
| Conductivity (mS/cm)             | 2.17                                                                             |
| Turbidity (NTU)                  | 17.9                                                                             |
| Dissolved Oxygen (mg/L)          | 0.76                                                                             |
| Temperature (Degrees Celsius)    | 9.3                                                                              |
| Redox (ORP mV)                   | 112.7                                                                            |
| parameters                       | @12:00, DTW:59.53, pH:6.68, temp:9.3, cond:2.17, turb:17.9, DO:0.76, redox:112.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit



**@12:05, DTW:59.57, pH:6.67, temp:9.4, cond:2.17, turb:21.4, DO:0.69, redox:56.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:05                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 59.57                                                                           |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 6.67                                                                            |
| Conductivity (mS/cm)             | 2.17                                                                            |
| Turbidity (NTU)                  | 21.4                                                                            |
| Dissolved Oxygen (mg/L)          | 0.69                                                                            |
| Temperature (Degrees Celsius)    | 9.4                                                                             |
| Redox (ORP mV)                   | 56.5                                                                            |
| parameters                       | @12:05, DTW:59.57, pH:6.67, temp:9.4, cond:2.17, turb:21.4, DO:0.69, redox:56.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:10, DTW:59.59, pH:6.64, temp:9.5, cond:2.21, turb:15.6, DO:0.68, redox:-5.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:10                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 59.59                                                                           |
| Milliliters Purged (total)       | 4000                                                                            |
| pH                               | 6.64                                                                            |
| Conductivity (mS/cm)             | 2.21                                                                            |
| Turbidity (NTU)                  | 15.6                                                                            |
| Dissolved Oxygen (mg/L)          | 0.68                                                                            |
| Temperature (Degrees Celsius)    | 9.5                                                                             |
| Redox (ORP mV)                   | -5.5                                                                            |
| parameters                       | @12:10, DTW:59.59, pH:6.64, temp:9.5, cond:2.21, turb:15.6, DO:0.68, redox:-5.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:15, DTW:59.61, pH:6.65, temp:9.6, cond:2.27, turb:13.3, DO:0.57, redox:-29.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 59.61 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.65  |
| Conductivity (mS/cm)             | 2.27  |
| Turbidity (NTU)                  | 13.3  |
| Dissolved Oxygen (mg/L)          | 0.57  |
| Temperature (Degrees Celsius)    | 9.6   |
| Redox (ORP mV)                   | -29.2 |

parameters

@12:15, DTW:59.61, pH:6.65, temp:9.6, cond:2.27, turb:13.3, DO:0.57, redox:-29.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:20, DTW:59.61, pH:6.65, temp:9.6, cond:2.29, turb:10.9, DO:0.53, redox:-37.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 59.61 |
| Milliliters Purged (total)       | 5000  |
| pH                               | 6.65  |
| Conductivity (mS/cm)             | 2.29  |
| Turbidity (NTU)                  | 10.9  |
| Dissolved Oxygen (mg/L)          | 0.53  |
| Temperature (Degrees Celsius)    | 9.6   |
| Redox (ORP mV)                   | -37.8 |

parameters

@12:20, DTW:59.61, pH:6.65, temp:9.6, cond:2.29, turb:10.9, DO:0.53, redox:-37.8

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:25, DTW:59.61, pH:6.65, temp:9.4, cond:2.32, turb:10.8, DO:0.5, redox:-44.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 59.61 |
| Milliliters Purged (total)       | 5500  |
| pH                               | 6.65  |
| Conductivity (mS/cm)             | 2.32  |
| Turbidity (NTU)                  | 10.8  |
| Dissolved Oxygen (mg/L)          | 0.5   |
| Temperature (Degrees Celsius)    | 9.4   |
| Redox (ORP mV)                   | -44.1 |

parameters

@12:25, DTW:59.61, pH:6.65, temp:9.4, cond:2.32, turb:10.8, DO:0.5, redox:-44.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:30, DTW:59.61, pH:6.65, temp:8.9, cond:2.35, turb:10.7, DO:0.49, redox:-46.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 59.61 |
| Milliliters Purged (total)       | 6000  |
| pH                               | 6.65  |
| Conductivity (mS/cm)             | 2.35  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 10.7                                                                             |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.49                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 8.9                                                                              |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -46.7                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @12:30, DTW:59.61, pH:6.65, temp:8.9, cond:2.35, turb:10.7, DO:0.49, redox:-46.7 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 12:30                                                                            |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                      |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6000                                                                             |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.62                                                                             |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:30 |
| Color         | Clear |
| Notable odors | No    |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |                           |
|--------------------------|---------------------------|
| Well Location            | Plant 3                   |
| Condition of Well        | Good                      |
| Well Locked at Arrival   | Yes                       |
| Well Locked at Departure | Yes                       |
| Comments                 | Drawdown didn't stabilize |

Signature

A handwritten signature in black ink, appearing to be 'Zy' followed by a vertical line and a cursive 'h'.

Signed 2019-12-06 16:41:07 UTC

---

## 2019-06-07, MW-13-47, MW-13-47

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-07 09:42:03 EDT by Donald Richmond |
| Updated                                                                                           | 2019-06-07 11:19:56 EDT by Christine Gregg |
| Location                                                                                          | 42.74128987, -84.58720448                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-07                                 |
| Well Identification                                                                               | MW-13-47                                   |
| Well ID                                                                                           | MW-13-47                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | MSMSD                                      |
| Weather                                                                                           | Sunny, 70 degrees                          |

### Evacuation Details

|                                                                                                                                                                                                                                                                       |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                      | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                              | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                           | 61.62         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1 \text{ foot}$ ] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                          | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                                | Bladder       |
| Sample Method                                                                                                                                                                                                                                                         | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                           | 09:40         |

### @09:50, DTW:65.8, pH:6.8, temp:18.8, cond:1.83, turb:30.7, DO:0.64, redox:189.6

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 09:50                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 65.8                                                                            |
| pH                            | 6.8                                                                             |
| Conductivity (mS/cm)          | 1.83                                                                            |
| Turbidity (NTU)               | 30.7                                                                            |
| Dissolved Oxygen (mg/L)       | 0.64                                                                            |
| Temperature (Degrees Celsius) | 18.8                                                                            |
| Redox (ORP mV)                | 189.6                                                                           |
| parameters                    | @09:50, DTW:65.8, pH:6.8, temp:18.8, cond:1.83, turb:30.7, DO:0.64, redox:189.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:50, DTW:65.8, pH:6.85, temp:18.5, cond:1.72, turb:21.7, DO:0.53, redox:17.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:50 |
| Minutes Elapsed between readings | 1440  |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |

|                               |      |
|-------------------------------|------|
| pH                            | 6.85 |
| Conductivity (mS/cm)          | 1.72 |
| Turbidity (NTU)               | 21.7 |
| Dissolved Oxygen (mg/L)       | 0.53 |
| Temperature (Degrees Celsius) | 18.5 |
| Redox (ORP mV)                | 17.3 |

parameters @09:50, DTW:65.8, pH:6.85, temp:18.5, cond:1.72, turb:21.7, DO:0.53, redox:17.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:55, DTW:65.8, pH:6.85, temp:19, cond:1.72, turb:15.2, DO:0.31, redox:-67.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 6.85  |
| Conductivity (mS/cm)             | 1.72  |
| Turbidity (NTU)                  | 15.2  |
| Dissolved Oxygen (mg/L)          | 0.31  |
| Temperature (Degrees Celsius)    | 19    |
| Redox (ORP mV)                   | -67.1 |

parameters @09:55, DTW:65.8, pH:6.85, temp:19, cond:1.72, turb:15.2, DO:0.31, redox:-67.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:00, DTW:65.8, pH:6.86, temp:17.7, cond:1.74, turb:11.5, DO:0.24, redox:-118.2

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 10:00  |
| Minutes Elapsed between readings | 9      |
| Rate (mL/min)                    | 200    |
| Depth to Water (ft)              | 65.8   |
| pH                               | 6.86   |
| Conductivity (mS/cm)             | 1.74   |
| Turbidity (NTU)                  | 11.5   |
| Dissolved Oxygen (mg/L)          | 0.24   |
| Temperature (Degrees Celsius)    | 17.7   |
| Redox (ORP mV)                   | -118.2 |

parameters @10:00, DTW:65.8, pH:6.86, temp:17.7, cond:1.74, turb:11.5, DO:0.24, redox:-118.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:05, DTW:65.8, pH:6.88, temp:18, cond:1.76, turb:8.72, DO:0.19, redox:-138.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Depth to Water (ft)           | 65.8                                                                            |
| pH                            | 6.88                                                                            |
| Conductivity (mS/cm)          | 1.76                                                                            |
| Turbidity (NTU)               | 8.72                                                                            |
| Dissolved Oxygen (mg/L)       | 0.19                                                                            |
| Temperature (Degrees Celsius) | 18                                                                              |
| Redox (ORP mV)                | -138.9                                                                          |
| parameters                    | @10:05, DTW:65.8, pH:6.88, temp:18, cond:1.76, turb:8.72, DO:0.19, redox:-138.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:10, DTW:65.8, pH:6.94, temp:18.2, cond:1.77, turb:8.59, DO:0.14, redox:-151.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 65.8                                                                              |
| pH                               | 6.94                                                                              |
| Conductivity (mS/cm)             | 1.77                                                                              |
| Turbidity (NTU)                  | 8.59                                                                              |
| Dissolved Oxygen (mg/L)          | 0.14                                                                              |
| Temperature (Degrees Celsius)    | 18.2                                                                              |
| Redox (ORP mV)                   | -151.5                                                                            |
| parameters                       | @10:10, DTW:65.8, pH:6.94, temp:18.2, cond:1.77, turb:8.59, DO:0.14, redox:-151.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:15, DTW:65.8, pH:6.97, temp:18, cond:1.78, turb:8.46, DO:0.16, redox:-156.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.8                                                                            |
| pH                               | 6.97                                                                            |
| Conductivity (mS/cm)             | 1.78                                                                            |
| Turbidity (NTU)                  | 8.46                                                                            |
| Dissolved Oxygen (mg/L)          | 0.16                                                                            |
| Temperature (Degrees Celsius)    | 18                                                                              |
| Redox (ORP mV)                   | -156.1                                                                          |
| parameters                       | @10:15, DTW:65.8, pH:6.97, temp:18, cond:1.78, turb:8.46, DO:0.16, redox:-156.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:20, DTW:65.8, pH:6.97, temp:19.1, cond:1.76, turb:9.42, DO:0.15, redox:-156.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:20 |
| Minutes Elapsed between readings | 5     |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 200                                                                               |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 65.8                                                                              |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.97                                                                              |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1.76                                                                              |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 9.42                                                                              |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.15                                                                              |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 19.1                                                                              |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -156.9                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @10:20, DTW:65.8, pH:6.97, temp:19.1, cond:1.76, turb:9.42, DO:0.15, redox:-156.9 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                   |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 10:20                                                                             |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Gallons                                                                           |
| Total Gallons Purged                                                                                                                                                                                                                                                                                                                             | 2                                                                                 |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:20 |
| Color         | None  |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |
| Signature                |         |



Signed 2019-06-07 14:11:49 UTC



## 2019-12-06, MW-13-48

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-06 17:56:20 UTC by Billy Cobern |
| Updated                                                                                           | 2019-12-06 18:32:22 UTC by Billy Cobern |
| Location                                                                                          | 42.7413715934779, -84.5870561991675     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-12-06                              |
| Well ID                                                                                           | MW-13-48                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Cloudy, windy, 30's                     |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 56.81         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 73.1          |
| Water Column                                                                                                                                                                                                                                                 | 16.29         |
| Gallons in Well                                                                                                                                                                                                                                              | 2.65          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 70.5          |
| Purge Start                                                                                                                                                                                                                                                  | 12:55         |

### @12:55, DTW:56.81, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 12:55                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 56.81                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @12:55, DTW:56.81, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:00, DTW:56.85, pH:6.92, temp:9, cond:2.54, turb:51.8, DO:4.81, redox:-27.2

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 56.85 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.92  |
| Conductivity (mS/cm)             | 2.54  |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Turbidity (NTU)               | 51.8                                                                           |
| Dissolved Oxygen (mg/L)       | 4.81                                                                           |
| Temperature (Degrees Celsius) | 9                                                                              |
| Redox (ORP mV)                | -27.2                                                                          |
| parameters                    | @13:00, DTW:56.85, pH:6.92, temp:9, cond:2.54, turb:51.8, DO:4.81, redox:-27.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:05, DTW:56.85, pH:6.82, temp:9.3, cond:2.6, turb:48.7, DO:2.97, redox:-35.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:05                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 56.85                                                                           |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 6.82                                                                            |
| Conductivity (mS/cm)             | 2.6                                                                             |
| Turbidity (NTU)                  | 48.7                                                                            |
| Dissolved Oxygen (mg/L)          | 2.97                                                                            |
| Temperature (Degrees Celsius)    | 9.3                                                                             |
| Redox (ORP mV)                   | -35.9                                                                           |
| parameters                       | @13:05, DTW:56.85, pH:6.82, temp:9.3, cond:2.6, turb:48.7, DO:2.97, redox:-35.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:10, DTW:56.85, pH:6.79, temp:8.9, cond:2.67, turb:39.3, DO:2.57, redox:-45.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 56.85                                                                            |
| Milliliters Purged (total)       | 1500                                                                             |
| pH                               | 6.79                                                                             |
| Conductivity (mS/cm)             | 2.67                                                                             |
| Turbidity (NTU)                  | 39.3                                                                             |
| Dissolved Oxygen (mg/L)          | 2.57                                                                             |
| Temperature (Degrees Celsius)    | 8.9                                                                              |
| Redox (ORP mV)                   | -45.8                                                                            |
| parameters                       | @13:10, DTW:56.85, pH:6.79, temp:8.9, cond:2.67, turb:39.3, DO:2.57, redox:-45.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:15, DTW:56.85, pH:6.79, temp:8.8, cond:2.7, turb:23.3, DO:2.89, redox:-46.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Depth to Water (ft)           | 56.85                                                                           |
| Milliliters Purged (total)    | 2000                                                                            |
| pH                            | 6.79                                                                            |
| Conductivity (mS/cm)          | 2.7                                                                             |
| Turbidity (NTU)               | 23.3                                                                            |
| Dissolved Oxygen (mg/L)       | 2.89                                                                            |
| Temperature (Degrees Celsius) | 8.8                                                                             |
| Redox (ORP mV)                | -46.4                                                                           |
| parameters                    | @13:15, DTW:56.85, pH:6.79, temp:8.8, cond:2.7, turb:23.3, DO:2.89, redox:-46.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:20, DTW:56.85, pH:6.79, temp:8.9, cond:2.7, turb:15.2, DO:2.47, redox:-50.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 56.85                                                                           |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 6.79                                                                            |
| Conductivity (mS/cm)             | 2.7                                                                             |
| Turbidity (NTU)                  | 15.2                                                                            |
| Dissolved Oxygen (mg/L)          | 2.47                                                                            |
| Temperature (Degrees Celsius)    | 8.9                                                                             |
| Redox (ORP mV)                   | -50.2                                                                           |
| parameters                       | @13:20, DTW:56.85, pH:6.79, temp:8.9, cond:2.7, turb:15.2, DO:2.47, redox:-50.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:25, DTW:56.85, pH:6.79, temp:9, cond:2.73, turb:10.7, DO:2.39, redox:-55.9**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:25                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 56.85                                                                          |
| Milliliters Purged (total)       | 3000                                                                           |
| pH                               | 6.79                                                                           |
| Conductivity (mS/cm)             | 2.73                                                                           |
| Turbidity (NTU)                  | 10.7                                                                           |
| Dissolved Oxygen (mg/L)          | 2.39                                                                           |
| Temperature (Degrees Celsius)    | 9                                                                              |
| Redox (ORP mV)                   | -55.9                                                                          |
| parameters                       | @13:25, DTW:56.85, pH:6.79, temp:9, cond:2.73, turb:10.7, DO:2.39, redox:-55.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:30, DTW:56.85, pH:6.79, temp:9.2, cond:2.73, turb:9.69, DO:2.12, redox:-57.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 56.85                                                                            |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 6.79                                                                             |
| Conductivity (mS/cm)             | 2.73                                                                             |
| Turbidity (NTU)                  | 9.69                                                                             |
| Dissolved Oxygen (mg/L)          | 2.12                                                                             |
| Temperature (Degrees Celsius)    | 9.2                                                                              |
| Redox (ORP mV)                   | -57.5                                                                            |
| parameters                       | @13:30, DTW:56.85, pH:6.79, temp:9.2, cond:2.73, turb:9.69, DO:2.12, redox:-57.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:35, DTW:56.85, pH:6.79, temp:9.3, cond:2.69, turb:9.23, DO:2.05, redox:-57.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 56.85                                                                            |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 6.79                                                                             |
| Conductivity (mS/cm)             | 2.69                                                                             |
| Turbidity (NTU)                  | 9.23                                                                             |
| Dissolved Oxygen (mg/L)          | 2.05                                                                             |
| Temperature (Degrees Celsius)    | 9.3                                                                              |
| Redox (ORP mV)                   | -57.8                                                                            |
| parameters                       | @13:35, DTW:56.85, pH:6.79, temp:9.3, cond:2.69, turb:9.23, DO:2.05, redox:-57.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:40, DTW:56.85, pH:6.79, temp:9.4, cond:2.73, turb:8.78, DO:2.04, redox:-58.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 56.85 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.79  |
| Conductivity (mS/cm)             | 2.73  |
| Turbidity (NTU)                  | 8.78  |
| Dissolved Oxygen (mg/L)          | 2.04  |
| Temperature (Degrees Celsius)    | 9.4   |
| Redox (ORP mV)                   | -58.5 |

parameters

@13:40, DTW:56.85, pH:6.79, temp:9.4, cond:2.73, turb:8.78, DO:2.04, redox:-58.5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:45, DTW:56.85, pH:6.79, temp:9.4, cond:2.74, turb:8.41, DO:2.02, redox:-58.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 56.85 |
| Milliliters Purged (total)       | 5000  |
| pH                               | 6.79  |
| Conductivity (mS/cm)             | 2.74  |
| Turbidity (NTU)                  | 8.41  |
| Dissolved Oxygen (mg/L)          | 2.02  |
| Temperature (Degrees Celsius)    | 9.4   |
| Redox (ORP mV)                   | -58.9 |

parameters

@13:45, DTW:56.85, pH:6.79, temp:9.4, cond:2.74, turb:8.41, DO:2.02, redox:-58.9

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:50, DTW:56.85, pH:6.79, temp:9.4, cond:2.74, turb:8.11, DO:2.02, redox:-59.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 56.85 |
| Milliliters Purged (total)       | 5500  |
| pH                               | 6.79  |
| Conductivity (mS/cm)             | 2.74  |
| Turbidity (NTU)                  | 8.11  |
| Dissolved Oxygen (mg/L)          | 2.02  |
| Temperature (Degrees Celsius)    | 9.4   |
| Redox (ORP mV)                   | -59.1 |

parameters

@13:50, DTW:56.85, pH:6.79, temp:9.4, cond:2.74, turb:8.11, DO:2.02, redox:-59.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 13:50       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 5500        |
| Well Volumes Purged           | 0.55        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:50 |
| Color         | Clear |
| Notable odors | No    |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to be '32/6' followed by a stylized flourish.

Signed 2019-12-06 17:58:13 UTC

## 2019-06-06, MW-13-49, MW-13-49

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 15:10:18 EDT by Donald Richmond |
| Updated                                                                                           | 2019-06-06 16:13:03 EDT by Christine Gregg |
| Location                                                                                          | 42.74137671, -84.58611256                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-13-49                                   |
| Well ID                                                                                           | MW-13-49                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | 68 degrees/ sunny                          |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 64.66         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder       |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                | 15:05         |

### @15:10, DTW:65.8, pH:7.22, temp:16.2, cond:1.59, turb:13.2, DO:21.28, redox:138.5

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 15:10                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 65.8                                                                              |
| pH                            | 7.22                                                                              |
| Conductivity (mS/cm)          | 1.59                                                                              |
| Turbidity (NTU)               | 13.2                                                                              |
| Dissolved Oxygen (mg/L)       | 21.28                                                                             |
| Temperature (Degrees Celsius) | 16.2                                                                              |
| Redox (ORP mV)                | 138.5                                                                             |
| parameters                    | @15:10, DTW:65.8, pH:7.22, temp:16.2, cond:1.59, turb:13.2, DO:21.28, redox:138.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:15, DTW:65.8, pH:7.24, temp:17.3, cond:1.59, turb:12.8, DO:20.35, redox:146.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 7.24  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.59                                                                              |
| Turbidity (NTU)               | 12.8                                                                              |
| Dissolved Oxygen (mg/L)       | 20.35                                                                             |
| Temperature (Degrees Celsius) | 17.3                                                                              |
| Redox (ORP mV)                | 146.3                                                                             |
| parameters                    | @15:15, DTW:65.8, pH:7.24, temp:17.3, cond:1.59, turb:12.8, DO:20.35, redox:146.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:20, DTW:65.8, pH:7.24, temp:17.2, cond:1.59, turb:43.2, DO:19.94, redox:147.3**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 15:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 65.8                                                                              |
| pH                               | 7.24                                                                              |
| Conductivity (mS/cm)             | 1.59                                                                              |
| Turbidity (NTU)                  | 43.2                                                                              |
| Dissolved Oxygen (mg/L)          | 19.94                                                                             |
| Temperature (Degrees Celsius)    | 17.2                                                                              |
| Redox (ORP mV)                   | 147.3                                                                             |
| parameters                       | @15:20, DTW:65.8, pH:7.24, temp:17.2, cond:1.59, turb:43.2, DO:19.94, redox:147.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:25, DTW:65.8, pH:7.23, temp:17.2, cond:1.6, turb:16.7, DO:3.34, redox:56**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 15:25                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 65.8                                                                         |
| pH                               | 7.23                                                                         |
| Conductivity (mS/cm)             | 1.6                                                                          |
| Turbidity (NTU)                  | 16.7                                                                         |
| Dissolved Oxygen (mg/L)          | 3.34                                                                         |
| Temperature (Degrees Celsius)    | 17.2                                                                         |
| Redox (ORP mV)                   | 56                                                                           |
| parameters                       | @15:25, DTW:65.8, pH:7.23, temp:17.2, cond:1.6, turb:16.7, DO:3.34, redox:56 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:30, DTW:65.8, pH:7.1, temp:19, cond:1.62, turb:14.2, DO:16, redox:65.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |



|                               |      |
|-------------------------------|------|
| pH                            | 7.1  |
| Conductivity (mS/cm)          | 1.62 |
| Turbidity (NTU)               | 14.2 |
| Dissolved Oxygen (mg/L)       | 16   |
| Temperature (Degrees Celsius) | 19   |
| Redox (ORP mV)                | 65.9 |

parameters @15:30, DTW:65.8, pH:7.1, temp:19, cond:1.62, turb:14.2, DO:16, redox:65.9

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:35, DTW:65.8, pH:7.04, temp:18.9, cond:1.65, turb:8.03, DO:12.4, redox:69.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 7.04  |
| Conductivity (mS/cm)             | 1.65  |
| Turbidity (NTU)                  | 8.03  |
| Dissolved Oxygen (mg/L)          | 12.4  |
| Temperature (Degrees Celsius)    | 18.9  |
| Redox (ORP mV)                   | 69.4  |

parameters @15:35, DTW:65.8, pH:7.04, temp:18.9, cond:1.65, turb:8.03, DO:12.4, redox:69.4

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:50, DTW:65.8, pH:7.08, temp:29.3, cond:1.69, turb:10.4, DO:1.69, redox:74.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:50 |
| Minutes Elapsed between readings | 15    |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 7.08  |
| Conductivity (mS/cm)             | 1.69  |
| Turbidity (NTU)                  | 10.4  |
| Dissolved Oxygen (mg/L)          | 1.69  |
| Temperature (Degrees Celsius)    | 29.3  |
| Redox (ORP mV)                   | 74.7  |

parameters @15:50, DTW:65.8, pH:7.08, temp:29.3, cond:1.69, turb:10.4, DO:1.69, redox:74.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:55, DTW:65.8, pH:7.17, temp:29, cond:1.7, turb:16.5, DO:4.21, redox:84.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Depth to Water (ft)           | 65.8                                                                         |
| pH                            | 7.17                                                                         |
| Conductivity (mS/cm)          | 1.7                                                                          |
| Turbidity (NTU)               | 16.5                                                                         |
| Dissolved Oxygen (mg/L)       | 4.21                                                                         |
| Temperature (Degrees Celsius) | 29                                                                           |
| Redox (ORP mV)                | 84.8                                                                         |
| parameters                    | @15:55, DTW:65.8, pH:7.17, temp:29, cond:1.7, turb:16.5, DO:4.21, redox:84.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @16:00, DTW:65.8, pH:7.18, temp:18, cond:1.73, turb:8.77, DO:2.71, redox:94

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 16:00                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 200                                                                         |
| Depth to Water (ft)              | 65.8                                                                        |
| pH                               | 7.18                                                                        |
| Conductivity (mS/cm)             | 1.73                                                                        |
| Turbidity (NTU)                  | 8.77                                                                        |
| Dissolved Oxygen (mg/L)          | 2.71                                                                        |
| Temperature (Degrees Celsius)    | 18                                                                          |
| Redox (ORP mV)                   | 94                                                                          |
| parameters                       | @16:00, DTW:65.8, pH:7.18, temp:18, cond:1.73, turb:8.77, DO:2.71, redox:94 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @16:05, DTW:65.8, pH:6.92, temp:16.2, cond:1.74, turb:6.78, DO:0.31, redox:-21.7

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 16:05                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.8                                                                             |
| pH                               | 6.92                                                                             |
| Conductivity (mS/cm)             | 1.74                                                                             |
| Turbidity (NTU)                  | 6.78                                                                             |
| Dissolved Oxygen (mg/L)          | 0.31                                                                             |
| Temperature (Degrees Celsius)    | 16.2                                                                             |
| Redox (ORP mV)                   | -21.7                                                                            |
| parameters                       | @16:05, DTW:65.8, pH:6.92, temp:16.2, cond:1.74, turb:6.78, DO:0.31, redox:-21.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 16:05 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 16:05 |
|-------------|-------|

|               |      |
|---------------|------|
| Color         | None |
| Notable odors | None |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | No      |
| Well Locked at Departure | No      |

Signature

A handwritten signature in black ink, appearing to be "R. R.", is centered on the page.

Signed 2019-06-06 19:30:31 UTC

## 2019-06-07, MW-13-49, MW-13-49

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-07 12:36:47 EDT by Donald Richmond |
| Updated                                                                                           | 2019-06-07 13:58:49 EDT by Christine Gregg |
| Location                                                                                          | 42.74128283, -84.58705972                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-07                                 |
| Well Identification                                                                               | MW-13-49                                   |
| Well ID                                                                                           | MW-13-49                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | 75 degrees/ Sunny                          |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 57.33         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder       |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                | 12:30         |

### @12:40, DTW:65.8, pH:7.56, temp:35.5, cond:0.019, turb:11.2, DO:6.19, redox:35.5

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 12:40                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 65.8                                                                             |
| pH                            | 7.56                                                                             |
| Conductivity (mS/cm)          | 0.019                                                                            |
| Turbidity (NTU)               | 11.2                                                                             |
| Dissolved Oxygen (mg/L)       | 6.19                                                                             |
| Temperature (Degrees Celsius) | 35.5                                                                             |
| Redox (ORP mV)                | 35.5                                                                             |
| parameters                    | @12:40, DTW:65.8, pH:7.56, temp:35.5, cond:0.019, turb:11.2, DO:6.19, redox:35.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:45, DTW:65.8, pH:7.54, temp:35.8, cond:0.019, turb:10.8, DO:6.16, redox:49.8

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 7.54  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.019                                                                            |
| Turbidity (NTU)               | 10.8                                                                             |
| Dissolved Oxygen (mg/L)       | 6.16                                                                             |
| Temperature (Degrees Celsius) | 35.8                                                                             |
| Redox (ORP mV)                | 49.8                                                                             |
| parameters                    | @12:45, DTW:65.8, pH:7.54, temp:35.8, cond:0.019, turb:10.8, DO:6.16, redox:49.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:50, DTW:65.8, pH:7.53, temp:36.4, cond:0.018, turb:13.4, DO:6.14, redox:56.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:50                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.8                                                                             |
| pH                               | 7.53                                                                             |
| Conductivity (mS/cm)             | 0.018                                                                            |
| Turbidity (NTU)                  | 13.4                                                                             |
| Dissolved Oxygen (mg/L)          | 6.14                                                                             |
| Temperature (Degrees Celsius)    | 36.4                                                                             |
| Redox (ORP mV)                   | 56.1                                                                             |
| parameters                       | @12:50, DTW:65.8, pH:7.53, temp:36.4, cond:0.018, turb:13.4, DO:6.14, redox:56.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:55, DTW:65.8, pH:7.52, temp:36.8, cond:0.018, turb:14.8, DO:6.18, redox:59.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.8                                                                             |
| pH                               | 7.52                                                                             |
| Conductivity (mS/cm)             | 0.018                                                                            |
| Turbidity (NTU)                  | 14.8                                                                             |
| Dissolved Oxygen (mg/L)          | 6.18                                                                             |
| Temperature (Degrees Celsius)    | 36.8                                                                             |
| Redox (ORP mV)                   | 59.6                                                                             |
| parameters                       | @12:55, DTW:65.8, pH:7.52, temp:36.8, cond:0.018, turb:14.8, DO:6.18, redox:59.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:00, DTW:65.8, pH:7.51, temp:37.1, cond:0.018, turb:11.5, DO:6.21, redox:64.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |

|                               |       |
|-------------------------------|-------|
| pH                            | 7.51  |
| Conductivity (mS/cm)          | 0.018 |
| Turbidity (NTU)               | 11.5  |
| Dissolved Oxygen (mg/L)       | 6.21  |
| Temperature (Degrees Celsius) | 37.1  |
| Redox (ORP mV)                | 64.3  |

parameters @13:00, DTW:65.8, pH:7.51, temp:37.1, cond:0.018, turb:11.5, DO:6.21, redox:64.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:05, DTW:65.8, pH:7.5, temp:37.5, cond:0.017, turb:9.22, DO:6.21, redox:66.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 7.5   |
| Conductivity (mS/cm)             | 0.017 |
| Turbidity (NTU)                  | 9.22  |
| Dissolved Oxygen (mg/L)          | 6.21  |
| Temperature (Degrees Celsius)    | 37.5  |
| Redox (ORP mV)                   | 66.9  |

parameters @13:05, DTW:65.8, pH:7.5, temp:37.5, cond:0.017, turb:9.22, DO:6.21, redox:66.9

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:10, DTW:65.8, pH:6.63, temp:20.1, cond:2.84, turb:9.22, DO:0.34, redox:-96.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 6.63  |
| Conductivity (mS/cm)             | 2.84  |
| Turbidity (NTU)                  | 9.22  |
| Dissolved Oxygen (mg/L)          | 0.34  |
| Temperature (Degrees Celsius)    | 20.1  |
| Redox (ORP mV)                   | -96.3 |

parameters @13:10, DTW:65.8, pH:6.63, temp:20.1, cond:2.84, turb:9.22, DO:0.34, redox:-96.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:15, DTW:65.8, pH:6.6, temp:20.3, cond:2.81, turb:5.2, DO:0.14, redox:-76.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Depth to Water (ft)           | 65.8                                                                           |
| pH                            | 6.6                                                                            |
| Conductivity (mS/cm)          | 2.81                                                                           |
| Turbidity (NTU)               | 5.2                                                                            |
| Dissolved Oxygen (mg/L)       | 0.14                                                                           |
| Temperature (Degrees Celsius) | 20.3                                                                           |
| Redox (ORP mV)                | -76.5                                                                          |
| parameters                    | @13:15, DTW:65.8, pH:6.6, temp:20.3, cond:2.81, turb:5.2, DO:0.14, redox:-76.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:20, DTW:65.8, pH:6.6, temp:20.3, cond:2.81, turb:5.13, DO:0.13, redox:-33.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.8                                                                            |
| pH                               | 6.6                                                                             |
| Conductivity (mS/cm)             | 2.81                                                                            |
| Turbidity (NTU)                  | 5.13                                                                            |
| Dissolved Oxygen (mg/L)          | 0.13                                                                            |
| Temperature (Degrees Celsius)    | 20.3                                                                            |
| Redox (ORP mV)                   | -33.7                                                                           |
| parameters                       | @13:20, DTW:65.8, pH:6.6, temp:20.3, cond:2.81, turb:5.13, DO:0.13, redox:-33.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:25, DTW:65.8, pH:6.61, temp:22.4, cond:2.82, turb:4.94, DO:0.11, redox:3.8**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:25                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 65.8                                                                           |
| pH                               | 6.61                                                                           |
| Conductivity (mS/cm)             | 2.82                                                                           |
| Turbidity (NTU)                  | 4.94                                                                           |
| Dissolved Oxygen (mg/L)          | 0.11                                                                           |
| Temperature (Degrees Celsius)    | 22.4                                                                           |
| Redox (ORP mV)                   | 3.8                                                                            |
| parameters                       | @13:25, DTW:65.8, pH:6.61, temp:22.4, cond:2.82, turb:4.94, DO:0.11, redox:3.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:30, DTW:65.8, pH:6.62, temp:20, cond:2.83, turb:5.12, DO:0.1, redox:42.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:30 |
| Minutes Elapsed between readings | 5     |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 200                                                                          |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 65.8                                                                         |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.62                                                                         |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 2.83                                                                         |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 5.12                                                                         |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.1                                                                          |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 20                                                                           |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 42.1                                                                         |
| parameters                                                                                                                                                                                                                                                                                                                                       | @13:30, DTW:65.8, pH:6.62, temp:20, cond:2.83, turb:5.12, DO:0.1, redox:42.1 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                              |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 13:30                                                                        |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Gallons                                                                      |
| Total Gallons Purged                                                                                                                                                                                                                                                                                                                             | 3                                                                            |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:30 |
| Color         | None  |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |



Signature

A handwritten signature in black ink, appearing to read "Di Qu". The letters are stylized and connected, with a small dot above the "i" in "Di".

Signed 2019-06-07 17:31:07 UTC

---

## 2019-08-29, MW-13-49, MW-13-49

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-08-29 14:12:30 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-08-29 14:42:24 EDT by Christine Gregg |
| Location                                                                                          | 42.74136086, -84.58611349                  |
| Project Number                                                                                    | 30006870.1234                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-08-29                                 |
| Well Identification                                                                               | MW-13-49                                   |
| Well ID                                                                                           | MW-13-49                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Partly Cloudy, Breezy, 70's                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 61.47         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 81.65         |
| Water Column                                                                                                                                                                                                                                              | 20.18         |
| Gallons in Well                                                                                                                                                                                                                                           | 3.28          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 79            |
| Purge Start                                                                                                                                                                                                                                               | 14:15         |

### @14:15, DTW:61.47, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 14:15                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 61.47                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @14:15, DTW:61.47, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:20, DTW:61.85, pH:6.76, temp:20.1, cond:1.82, turb:16.5, DO:5.21, redox:-47.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.85 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.76  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.82                                                                              |
| Turbidity (NTU)               | 16.5                                                                              |
| Dissolved Oxygen (mg/L)       | 5.21                                                                              |
| Temperature (Degrees Celsius) | 20.1                                                                              |
| Redox (ORP mV)                | -47.5                                                                             |
| parameters                    | @14:20, DTW:61.85, pH:6.76, temp:20.1, cond:1.82, turb:16.5, DO:5.21, redox:-47.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:25, DTW:62.09, pH:6.75, temp:18.8, cond:1.82, turb:11.9, DO:4.75, redox:-51.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:25                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 62.09                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 6.75                                                                              |
| Conductivity (mS/cm)             | 1.82                                                                              |
| Turbidity (NTU)                  | 11.9                                                                              |
| Dissolved Oxygen (mg/L)          | 4.75                                                                              |
| Temperature (Degrees Celsius)    | 18.8                                                                              |
| Redox (ORP mV)                   | -51.2                                                                             |
| parameters                       | @14:25, DTW:62.09, pH:6.75, temp:18.8, cond:1.82, turb:11.9, DO:4.75, redox:-51.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:30, DTW:62.34, pH:6.78, temp:18.5, cond:1.81, turb:10.2, DO:4.46, redox:-55.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:30                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 62.34                                                                             |
| Milliliters Purged (total)       | 1500                                                                              |
| pH                               | 6.78                                                                              |
| Conductivity (mS/cm)             | 1.81                                                                              |
| Turbidity (NTU)                  | 10.2                                                                              |
| Dissolved Oxygen (mg/L)          | 4.46                                                                              |
| Temperature (Degrees Celsius)    | 18.5                                                                              |
| Redox (ORP mV)                   | -55.2                                                                             |
| parameters                       | @14:30, DTW:62.34, pH:6.78, temp:18.5, cond:1.81, turb:10.2, DO:4.46, redox:-55.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:35, DTW:62.61, pH:6.79, temp:18.3, cond:1.81, turb:9.31, DO:4.61, redox:-56.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:35 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                               |
| Depth to Water (ft)           | 62.61                                                                             |
| Milliliters Purged (total)    | 2000                                                                              |
| pH                            | 6.79                                                                              |
| Conductivity (mS/cm)          | 1.81                                                                              |
| Turbidity (NTU)               | 9.31                                                                              |
| Dissolved Oxygen (mg/L)       | 4.61                                                                              |
| Temperature (Degrees Celsius) | 18.3                                                                              |
| Redox (ORP mV)                | -56.9                                                                             |
| parameters                    | @14:35, DTW:62.61, pH:6.79, temp:18.3, cond:1.81, turb:9.31, DO:4.61, redox:-56.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:40, DTW:62.79, pH:6.81, temp:18.4, cond:1.81, turb:8.56, DO:4.1, redox:-58.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 62.79                                                                            |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 6.81                                                                             |
| Conductivity (mS/cm)             | 1.81                                                                             |
| Turbidity (NTU)                  | 8.56                                                                             |
| Dissolved Oxygen (mg/L)          | 4.1                                                                              |
| Temperature (Degrees Celsius)    | 18.4                                                                             |
| Redox (ORP mV)                   | -58.4                                                                            |
| parameters                       | @14:40, DTW:62.79, pH:6.81, temp:18.4, cond:1.81, turb:8.56, DO:4.1, redox:-58.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:45, DTW:62.89, pH:6.81, temp:18.6, cond:1.8, turb:8.01, DO:4.1, redox:-59.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 62.89                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 6.81                                                                            |
| Conductivity (mS/cm)             | 1.8                                                                             |
| Turbidity (NTU)                  | 8.01                                                                            |
| Dissolved Oxygen (mg/L)          | 4.1                                                                             |
| Temperature (Degrees Celsius)    | 18.6                                                                            |
| Redox (ORP mV)                   | -59.2                                                                           |
| parameters                       | @14:45, DTW:62.89, pH:6.81, temp:18.6, cond:1.8, turb:8.01, DO:4.1, redox:-59.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:50, DTW:62.98, pH:6.82, temp:18.7, cond:1.81, turb:8.34, DO:4.09, redox:-59.8**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:50                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 62.98                                                                             |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 6.82                                                                              |
| Conductivity (mS/cm)             | 1.81                                                                              |
| Turbidity (NTU)                  | 8.34                                                                              |
| Dissolved Oxygen (mg/L)          | 4.09                                                                              |
| Temperature (Degrees Celsius)    | 18.7                                                                              |
| Redox (ORP mV)                   | -59.8                                                                             |
| parameters                       | @14:50, DTW:62.98, pH:6.82, temp:18.7, cond:1.81, turb:8.34, DO:4.09, redox:-59.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 14:50       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 3500        |
| Well Volumes Purged           | 0.28        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:50 |
| Color         | Clear |
| Notable odors | No    |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | No      |
| Well Locked at Departure | No      |

Photo of Well



Comments

Drawdown didn't stabilize

Signature

Bun/h

Signed 2019-08-29 18:15:44 UTC

## 2019-06-05, MW-14-54, MW-14-54

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-05 14:03:46 EDT by Jessica Fransted |
| Updated                                                                                           | 2019-06-05 15:26:25 EDT by Christine Gregg  |
| Location                                                                                          | 42.7367744, -84.5864113                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-05                                  |
| Well Identification                                                                               | MW-14-54                                    |
| Well ID                                                                                           | MW-14-54                                    |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                         |
| Weather                                                                                           | Partly cloudy 70s                           |

### Evacuation Details

|                                                                                                                                                                                                                                                           |                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing      |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2                  |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 13.19              |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 19                 |
| Water Column                                                                                                                                                                                                                                              | 5.8100000000000005 |
| Gallons in Well                                                                                                                                                                                                                                           | 0.94               |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                    |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow           |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic        |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow           |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 15                 |
| Purge Start                                                                                                                                                                                                                                               | 14:35              |

### @14:40, DTW:6.57, pH:8.3, temp:12.9, cond:1.42, turb:0.02, DO:0.11, redox:281.1

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 14:40                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 6.57                                                                            |
| pH                            | 8.3                                                                             |
| Conductivity (mS/cm)          | 1.42                                                                            |
| Turbidity (NTU)               | 0.02                                                                            |
| Dissolved Oxygen (mg/L)       | 0.11                                                                            |
| Temperature (Degrees Celsius) | 12.9                                                                            |
| Redox (ORP mV)                | 281.1                                                                           |
| parameters                    | @14:40, DTW:6.57, pH:8.3, temp:12.9, cond:1.42, turb:0.02, DO:0.11, redox:281.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:45, DTW:6.57, pH:8.25, temp:12.7, cond:1.39, turb:0.02, DO:0.07, redox:-301.6

|              |       |
|--------------|-------|
| Reading Time | 14:45 |
|--------------|-------|

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 6.57                                                                              |
| pH                               | 8.25                                                                              |
| Conductivity (mS/cm)             | 1.39                                                                              |
| Turbidity (NTU)                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)          | 0.07                                                                              |
| Temperature (Degrees Celsius)    | 12.7                                                                              |
| Redox (ORP mV)                   | -301.6                                                                            |
| parameters                       | @14:45, DTW:6.57, pH:8.25, temp:12.7, cond:1.39, turb:0.02, DO:0.07, redox:-301.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:50, DTW:6.57, pH:8.25, temp:12.8, cond:1.36, turb:0.02, DO:0.05, redox:-308.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:50                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 6.57                                                                              |
| pH                               | 8.25                                                                              |
| Conductivity (mS/cm)             | 1.36                                                                              |
| Turbidity (NTU)                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)          | 0.05                                                                              |
| Temperature (Degrees Celsius)    | 12.8                                                                              |
| Redox (ORP mV)                   | -308.5                                                                            |
| parameters                       | @14:50, DTW:6.57, pH:8.25, temp:12.8, cond:1.36, turb:0.02, DO:0.05, redox:-308.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:55, DTW:6.57, pH:8.27, temp:12.6, cond:1.3, turb:0.02, DO:0.03, redox:-314.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 6.57                                                                             |
| pH                               | 8.27                                                                             |
| Conductivity (mS/cm)             | 1.3                                                                              |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.03                                                                             |
| Temperature (Degrees Celsius)    | 12.6                                                                             |
| Redox (ORP mV)                   | -314.7                                                                           |
| parameters                       | @14:55, DTW:6.57, pH:8.27, temp:12.6, cond:1.3, turb:0.02, DO:0.03, redox:-314.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:00, DTW:6.57, pH:8.31, temp:12.7, cond:1.2, turb:0.02, DO:0.05, redox:-317.7**



|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 6.57                                                                             |
| pH                               | 8.31                                                                             |
| Conductivity (mS/cm)             | 1.2                                                                              |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.05                                                                             |
| Temperature (Degrees Celsius)    | 12.7                                                                             |
| Redox (ORP mV)                   | -317.7                                                                           |
| parameters                       | @15:00, DTW:6.57, pH:8.31, temp:12.7, cond:1.2, turb:0.02, DO:0.05, redox:-317.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:05, DTW:6.57, pH:8.33, temp:12.6, cond:1.15, turb:0.02, DO:0.05, redox:-319.5

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 15:05                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 6.57                                                                              |
| pH                               | 8.33                                                                              |
| Conductivity (mS/cm)             | 1.15                                                                              |
| Turbidity (NTU)                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)          | 0.05                                                                              |
| Temperature (Degrees Celsius)    | 12.6                                                                              |
| Redox (ORP mV)                   | -319.5                                                                            |
| parameters                       | @15:05, DTW:6.57, pH:8.33, temp:12.6, cond:1.15, turb:0.02, DO:0.05, redox:-319.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 15:05 |
|-----------|-------|

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:05 |
| Color         | Clear |
| Notable odors | Yes   |

### VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

### Well Information

|                        |         |
|------------------------|---------|
| Well Location          | Plant 2 |
| Condition of Well      | Good    |
| Well Locked at Arrival | Yes     |

Well Locked at Departure

Yes

Signature

A handwritten signature in black ink that reads "Jessica Fransted". The script is cursive and fluid, with the first name "Jessica" and last name "Fransted" written in a single line.

Signed 2019-06-05 18:06:02 UTC

## 2019-06-05, MW-14-55, MW-14-55

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-05 10:49:51 EDT by Jessica Fransted |
| Updated                                                                                           | 2019-06-05 11:34:14 EDT by Christine Gregg  |
| Location                                                                                          | 42.7369599, -84.5870697                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-05                                  |
| Well Identification                                                                               | MW-14-55                                    |
| Well ID                                                                                           | MW-14-55                                    |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                         |
| Weather                                                                                           | Cloudy 70s                                  |

### Evacuation Details

|                                                                                                                                                                                                                                                           |                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing      |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2                  |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 17.31              |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 20.05              |
| Water Column                                                                                                                                                                                                                                              | 2.7400000000000002 |
| Gallons in Well                                                                                                                                                                                                                                           | 0.45               |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                    |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow           |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic        |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow           |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 18.5               |
| Purge Start                                                                                                                                                                                                                                               | 11:15              |

### @11:15, DTW:21.4, pH:7.36, temp:11.9, cond:0.623, turb:0.02, DO:5.97, redox:125.5

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 11:15                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 21.4                                                                              |
| pH                            | 7.36                                                                              |
| Conductivity (mS/cm)          | 0.623                                                                             |
| Turbidity (NTU)               | 0.02                                                                              |
| Dissolved Oxygen (mg/L)       | 5.97                                                                              |
| Temperature (Degrees Celsius) | 11.9                                                                              |
| Redox (ORP mV)                | 125.5                                                                             |
| parameters                    | @11:15, DTW:21.4, pH:7.36, temp:11.9, cond:0.623, turb:0.02, DO:5.97, redox:125.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:20, DTW:21.4, pH:7.32, temp:11.9, cond:0.625, turb:0.02, DO:6, redox:120.1

|              |       |
|--------------|-------|
| Reading Time | 11:20 |
|--------------|-------|

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 21.4                                                                           |
| pH                               | 7.32                                                                           |
| Conductivity (mS/cm)             | 0.625                                                                          |
| Turbidity (NTU)                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)          | 6                                                                              |
| Temperature (Degrees Celsius)    | 11.9                                                                           |
| Redox (ORP mV)                   | 120.1                                                                          |
| parameters                       | @11:20, DTW:21.4, pH:7.32, temp:11.9, cond:0.625, turb:0.02, DO:6, redox:120.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:25, DTW:21.4, pH:7.33, temp:12, cond:0.624, turb:0.02, DO:5.85, redox:118.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 21.4                                                                            |
| pH                               | 7.33                                                                            |
| Conductivity (mS/cm)             | 0.624                                                                           |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 5.85                                                                            |
| Temperature (Degrees Celsius)    | 12                                                                              |
| Redox (ORP mV)                   | 118.5                                                                           |
| parameters                       | @11:25, DTW:21.4, pH:7.33, temp:12, cond:0.624, turb:0.02, DO:5.85, redox:118.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:30, DTW:21.4, pH:7.33, temp:11.9, cond:0.623, turb:0.02, DO:5.8, redox:117.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 21.4                                                                             |
| pH                               | 7.33                                                                             |
| Conductivity (mS/cm)             | 0.623                                                                            |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 5.8                                                                              |
| Temperature (Degrees Celsius)    | 11.9                                                                             |
| Redox (ORP mV)                   | 117.5                                                                            |
| parameters                       | @11:30, DTW:21.4, pH:7.33, temp:11.9, cond:0.623, turb:0.02, DO:5.8, redox:117.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 11:30 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:30 |
| Color         | Clear |
| Notable odors | Clear |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |
| Signature                |         |



Signed 2019-06-05 14:50:55 UTC

## 2019-06-13, MW-14-56, MW-14-56

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-13 09:32:40 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-13 09:47:49 EDT by Christine Gregg |
| Location                                                                                          | 42.73748243, -84.58732534                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-13                                 |
| Well Identification                                                                               | MW-14-56                                   |
| Well ID                                                                                           | MW-14-56                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy Rainy 50's                          |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 65.85         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 79            |
| Water Column                                                                                                                                                                                                                                              | 13.15         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.14          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 76.5          |
| Purge Start                                                                                                                                                                                                                                               | 09:00         |

### @09:00, DTW:65.85, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 09:00                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 65.85                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @09:00, DTW:65.85, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:05, DTW:66.41, pH:6.69, temp:13.5, cond:5.86, turb:101, DO:2.76, redox:-50.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 66.41 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.69  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 5.86                                                                             |
| Turbidity (NTU)               | 101                                                                              |
| Dissolved Oxygen (mg/L)       | 2.76                                                                             |
| Temperature (Degrees Celsius) | 13.5                                                                             |
| Redox (ORP mV)                | -50.1                                                                            |
| parameters                    | @09:05, DTW:66.41, pH:6.69, temp:13.5, cond:5.86, turb:101, DO:2.76, redox:-50.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:10, DTW:66.35, pH:6.7, temp:13.7, cond:5.85, turb:79.8, DO:2.32, redox:-51.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 66.35                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 6.7                                                                              |
| Conductivity (mS/cm)             | 5.85                                                                             |
| Turbidity (NTU)                  | 79.8                                                                             |
| Dissolved Oxygen (mg/L)          | 2.32                                                                             |
| Temperature (Degrees Celsius)    | 13.7                                                                             |
| Redox (ORP mV)                   | -51.5                                                                            |
| parameters                       | @09:10, DTW:66.35, pH:6.7, temp:13.7, cond:5.85, turb:79.8, DO:2.32, redox:-51.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:15, DTW:66.35, pH:6.7, temp:13.7, cond:5.85, turb:66.7, DO:2.33, redox:-51.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 66.35                                                                            |
| Milliliters Purged (total)       | 1500                                                                             |
| pH                               | 6.7                                                                              |
| Conductivity (mS/cm)             | 5.85                                                                             |
| Turbidity (NTU)                  | 66.7                                                                             |
| Dissolved Oxygen (mg/L)          | 2.33                                                                             |
| Temperature (Degrees Celsius)    | 13.7                                                                             |
| Redox (ORP mV)                   | -51.3                                                                            |
| parameters                       | @09:15, DTW:66.35, pH:6.7, temp:13.7, cond:5.85, turb:66.7, DO:2.33, redox:-51.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:20, DTW:66.29, pH:6.71, temp:13.7, cond:5.85, turb:57.9, DO:2.32, redox:-51.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:20 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                               |
| Depth to Water (ft)           | 66.29                                                                             |
| Milliliters Purged (total)    | 2000                                                                              |
| pH                            | 6.71                                                                              |
| Conductivity (mS/cm)          | 5.85                                                                              |
| Turbidity (NTU)               | 57.9                                                                              |
| Dissolved Oxygen (mg/L)       | 2.32                                                                              |
| Temperature (Degrees Celsius) | 13.7                                                                              |
| Redox (ORP mV)                | -51.1                                                                             |
| parameters                    | @09:20, DTW:66.29, pH:6.71, temp:13.7, cond:5.85, turb:57.9, DO:2.32, redox:-51.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:25, DTW:66.29, pH:6.71, temp:13.8, cond:5.85, turb:50.1, DO:2.32, redox:-50.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:25                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 66.29                                                                             |
| Milliliters Purged (total)       | 2500                                                                              |
| pH                               | 6.71                                                                              |
| Conductivity (mS/cm)             | 5.85                                                                              |
| Turbidity (NTU)                  | 50.1                                                                              |
| Dissolved Oxygen (mg/L)          | 2.32                                                                              |
| Temperature (Degrees Celsius)    | 13.8                                                                              |
| Redox (ORP mV)                   | -50.9                                                                             |
| parameters                       | @09:25, DTW:66.29, pH:6.71, temp:13.8, cond:5.85, turb:50.1, DO:2.32, redox:-50.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:30, DTW:66.23, pH:6.71, temp:13.8, cond:5.86, turb:44.6, DO:2.61, redox:-50.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:30                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 66.23                                                                             |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 6.71                                                                              |
| Conductivity (mS/cm)             | 5.86                                                                              |
| Turbidity (NTU)                  | 44.6                                                                              |
| Dissolved Oxygen (mg/L)          | 2.61                                                                              |
| Temperature (Degrees Celsius)    | 13.8                                                                              |
| Redox (ORP mV)                   | -50.5                                                                             |
| parameters                       | @09:30, DTW:66.23, pH:6.71, temp:13.8, cond:5.86, turb:44.6, DO:2.61, redox:-50.5 |



Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:35, DTW:66.18, pH:6.71, temp:13.8, cond:5.86, turb:39.4, DO:2.61, redox:-50.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 66.18                                                                             |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 6.71                                                                              |
| Conductivity (mS/cm)             | 5.86                                                                              |
| Turbidity (NTU)                  | 39.4                                                                              |
| Dissolved Oxygen (mg/L)          | 2.61                                                                              |
| Temperature (Degrees Celsius)    | 13.8                                                                              |
| Redox (ORP mV)                   | -50.2                                                                             |
| parameters                       | @09:35, DTW:66.18, pH:6.71, temp:13.8, cond:5.86, turb:39.4, DO:2.61, redox:-50.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:40, DTW:66.13, pH:6.71, temp:13.8, cond:5.85, turb:31.7, DO:2.49, redox:-49.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 66.13                                                                             |
| Milliliters Purged (total)       | 4000                                                                              |
| pH                               | 6.71                                                                              |
| Conductivity (mS/cm)             | 5.85                                                                              |
| Turbidity (NTU)                  | 31.7                                                                              |
| Dissolved Oxygen (mg/L)          | 2.49                                                                              |
| Temperature (Degrees Celsius)    | 13.8                                                                              |
| Redox (ORP mV)                   | -49.9                                                                             |
| parameters                       | @09:40, DTW:66.13, pH:6.71, temp:13.8, cond:5.85, turb:31.7, DO:2.49, redox:-49.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:45, DTW:66.13, pH:6.71, temp:13.8, cond:5.85, turb:34.8, DO:2.48, redox:-49.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 66.13 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.71  |
| Conductivity (mS/cm)             | 5.85  |
| Turbidity (NTU)                  | 34.8  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 2.48                                                                              |
| Temperature (Degrees Celsius) | 13.8                                                                              |
| Redox (ORP mV)                | -49.7                                                                             |
| parameters                    | @09:45, DTW:66.13, pH:6.71, temp:13.8, cond:5.85, turb:34.8, DO:2.48, redox:-49.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:50, DTW:66.13, pH:6.71, temp:13.8, cond:5.85, turb:32.3, DO:2.45, redox:-49.4

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:50                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 66.13                                                                             |
| Milliliters Purged (total)       | 5000                                                                              |
| pH                               | 6.71                                                                              |
| Conductivity (mS/cm)             | 5.85                                                                              |
| Turbidity (NTU)                  | 32.3                                                                              |
| Dissolved Oxygen (mg/L)          | 2.45                                                                              |
| Temperature (Degrees Celsius)    | 13.8                                                                              |
| Redox (ORP mV)                   | -49.4                                                                             |
| parameters                       | @09:50, DTW:66.13, pH:6.71, temp:13.8, cond:5.85, turb:32.3, DO:2.45, redox:-49.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 09:50       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 5000        |
| Well Volumes Purged           | 0.62        |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 09:50 |
| Color         | Clear |
| Notable odors | No    |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |                        |
|--------------------------|------------------------|
| Well Location            | West middle of Plant 2 |
| Condition of Well        | Good                   |
| Well Locked at Arrival   | Yes                    |
| Well Locked at Departure | Yes                    |
| Photo of Well            |                        |



Signature

34/L

Signed 2019-06-13 13:36:51 UTC

## 2019-12-05, MW-14-56

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-05 17:12:02 UTC by Gary Schafer |
| Updated                                                                                           | 2019-12-05 18:03:18 UTC by Gary Schafer |
| Location                                                                                          | 42.7375049377258, -84.5873332210673     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-12-05                              |
| Well ID                                                                                           | MW-14-56                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Overcast slight wind temp 33            |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 65.7          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 78.54         |
| Water Column                                                                                                                                                                                                                                                 | 12.84         |
| Gallons in Well                                                                                                                                                                                                                                              | 2.09          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 66.6          |
| Purge Start                                                                                                                                                                                                                                                  | 12:13         |

### @12:14, DTW:65.8, pH:6.86, temp:12, cond:5654, turb:32.2, DO:0.46, redox:-13.6

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 12:14                                                                          |
| Rate (mL/min)                 | 100                                                                            |
| Depth to Water (ft)           | 65.8                                                                           |
| pH                            | 6.86                                                                           |
| Conductivity (mS/cm)          | 5654                                                                           |
| Turbidity (NTU)               | 32.2                                                                           |
| Dissolved Oxygen (mg/L)       | 0.46                                                                           |
| Temperature (Degrees Celsius) | 12                                                                             |
| Redox (ORP mV)                | -13.6                                                                          |
| parameters                    | @12:14, DTW:65.8, pH:6.86, temp:12, cond:5654, turb:32.2, DO:0.46, redox:-13.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:19, DTW:66.3, pH:6.85, temp:12.1, cond:5670, turb:22.3, DO:0.81, redox:-12.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:19 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 66.3                                                                             |
| pH                            | 6.85                                                                             |
| Conductivity (mS/cm)          | 5670                                                                             |
| Turbidity (NTU)               | 22.3                                                                             |
| Dissolved Oxygen (mg/L)       | 0.81                                                                             |
| Temperature (Degrees Celsius) | 12.1                                                                             |
| Redox (ORP mV)                | -12.5                                                                            |
| parameters                    | @12:19, DTW:66.3, pH:6.85, temp:12.1, cond:5670, turb:22.3, DO:0.81, redox:-12.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:24, DTW:66.48, pH:6.85, temp:11.8, cond:5662, turb:16.6, DO:0.47, redox:-12.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:24                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 66.48                                                                             |
| pH                               | 6.85                                                                              |
| Conductivity (mS/cm)             | 5662                                                                              |
| Turbidity (NTU)                  | 16.6                                                                              |
| Dissolved Oxygen (mg/L)          | 0.47                                                                              |
| Temperature (Degrees Celsius)    | 11.8                                                                              |
| Redox (ORP mV)                   | -12.4                                                                             |
| parameters                       | @12:24, DTW:66.48, pH:6.85, temp:11.8, cond:5662, turb:16.6, DO:0.47, redox:-12.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:29, DTW:66.6, pH:6.85, temp:12, cond:5669, turb:13.7, DO:0.43, redox:-12.9**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:29                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 66.6                                                                           |
| pH                               | 6.85                                                                           |
| Conductivity (mS/cm)             | 5669                                                                           |
| Turbidity (NTU)                  | 13.7                                                                           |
| Dissolved Oxygen (mg/L)          | 0.43                                                                           |
| Temperature (Degrees Celsius)    | 12                                                                             |
| Redox (ORP mV)                   | -12.9                                                                          |
| parameters                       | @12:29, DTW:66.6, pH:6.85, temp:12, cond:5669, turb:13.7, DO:0.43, redox:-12.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:34, DTW:66.6, pH:6.85, temp:12.1, cond:5668, turb:11.7, DO:0.39, redox:-12.1**

|              |       |
|--------------|-------|
| Reading Time | 12:34 |
|--------------|-------|

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 66.6                                                                             |
| pH                               | 6.85                                                                             |
| Conductivity (mS/cm)             | 5668                                                                             |
| Turbidity (NTU)                  | 11.7                                                                             |
| Dissolved Oxygen (mg/L)          | 0.39                                                                             |
| Temperature (Degrees Celsius)    | 12.1                                                                             |
| Redox (ORP mV)                   | -12.1                                                                            |
| parameters                       | @12:34, DTW:66.6, pH:6.85, temp:12.1, cond:5668, turb:11.7, DO:0.39, redox:-12.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:39, DTW:66.6, pH:6.85, temp:11.9, cond:5660, turb:9.58, DO:0.4, redox:-11**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 12:39                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 66.6                                                                          |
| pH                               | 6.85                                                                          |
| Conductivity (mS/cm)             | 5660                                                                          |
| Turbidity (NTU)                  | 9.58                                                                          |
| Dissolved Oxygen (mg/L)          | 0.4                                                                           |
| Temperature (Degrees Celsius)    | 11.9                                                                          |
| Redox (ORP mV)                   | -11                                                                           |
| parameters                       | @12:39, DTW:66.6, pH:6.85, temp:11.9, cond:5660, turb:9.58, DO:0.4, redox:-11 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:44, DTW:66.6, pH:6.85, temp:12, cond:5664, turb:9, DO:0.44, redox:-12.4**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 12:44                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 100                                                                         |
| Depth to Water (ft)              | 66.6                                                                        |
| pH                               | 6.85                                                                        |
| Conductivity (mS/cm)             | 5664                                                                        |
| Turbidity (NTU)                  | 9                                                                           |
| Dissolved Oxygen (mg/L)          | 0.44                                                                        |
| Temperature (Degrees Celsius)    | 12                                                                          |
| Redox (ORP mV)                   | -12.4                                                                       |
| parameters                       | @12:44, DTW:66.6, pH:6.85, temp:12, cond:5664, turb:9, DO:0.44, redox:-12.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 12:45 |
|-----------|-------|

|                               |         |
|-------------------------------|---------|
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 1       |
| Well Volumes Purged           | 0.48    |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:45 |
| Color         | Clear |
| Notable odors | None  |

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW-14-56 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature



Signed 2019-12-05 18:03:16 UTC

## 2019-06-05, MW-14-57, MW-14-57

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-05 09:12:48 EDT by Jessica Fransted |
| Updated                                                                                           | 2019-06-05 10:42:29 EDT by Christine Gregg  |
| Location                                                                                          | 42.7375358, -84.5865962                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-05                                  |
| Well Identification                                                                               | MW-14-57                                    |
| Well ID                                                                                           | MW-14-57                                    |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                         |
| Weather                                                                                           | Partly cloudy 70s                           |

### Evacuation Details

|                                                                                                                                                                                                                                                                       |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                      | Top of Casing     |
| Casing Diameter (inches)                                                                                                                                                                                                                                              | 2                 |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                           | 13.1              |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                                  | 21.4              |
| Water Column                                                                                                                                                                                                                                                          | 8.299999999999999 |
| Gallons in Well                                                                                                                                                                                                                                                       | 1.35              |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1 \text{ foot}$ ] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                   |
| Purge Method                                                                                                                                                                                                                                                          | Low-Flow          |
| Type of Equipment used                                                                                                                                                                                                                                                | Peristaltic       |
| Sample Method                                                                                                                                                                                                                                                         | Low-Flow          |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                              | 15                |
| Purge Start                                                                                                                                                                                                                                                           | 10:00             |

### @10:00, DTW:21.4, pH:7.31, temp:14.2, cond:0.77, turb:4.35, DO:1.31, redox:133.1

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 10:00                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 21.4                                                                             |
| pH                            | 7.31                                                                             |
| Conductivity (mS/cm)          | 0.77                                                                             |
| Turbidity (NTU)               | 4.35                                                                             |
| Dissolved Oxygen (mg/L)       | 1.31                                                                             |
| Temperature (Degrees Celsius) | 14.2                                                                             |
| Redox (ORP mV)                | 133.1                                                                            |
| parameters                    | @10:00, DTW:21.4, pH:7.31, temp:14.2, cond:0.77, turb:4.35, DO:1.31, redox:133.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:05, DTW:21.4, pH:7.26, temp:13.6, cond:0.77, turb:0.02, DO:0.76, redox:129.6

|              |       |
|--------------|-------|
| Reading Time | 10:05 |
|--------------|-------|



|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 21.4                                                                             |
| pH                               | 7.26                                                                             |
| Conductivity (mS/cm)             | 0.77                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.76                                                                             |
| Temperature (Degrees Celsius)    | 13.6                                                                             |
| Redox (ORP mV)                   | 129.6                                                                            |
| parameters                       | @10:05, DTW:21.4, pH:7.26, temp:13.6, cond:0.77, turb:0.02, DO:0.76, redox:129.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:10, DTW:21.4, pH:7.28, temp:13.4, cond:0.76, turb:0.02, DO:0.77, redox:124.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 21.4                                                                             |
| pH                               | 7.28                                                                             |
| Conductivity (mS/cm)             | 0.76                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.77                                                                             |
| Temperature (Degrees Celsius)    | 13.4                                                                             |
| Redox (ORP mV)                   | 124.6                                                                            |
| parameters                       | @10:10, DTW:21.4, pH:7.28, temp:13.4, cond:0.76, turb:0.02, DO:0.77, redox:124.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:15, DTW:21.4, pH:7.3, temp:13.7, cond:0.77, turb:0.02, DO:0.75, redox:120.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 21.4                                                                            |
| pH                               | 7.3                                                                             |
| Conductivity (mS/cm)             | 0.77                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.75                                                                            |
| Temperature (Degrees Celsius)    | 13.7                                                                            |
| Redox (ORP mV)                   | 120.7                                                                           |
| parameters                       | @10:15, DTW:21.4, pH:7.3, temp:13.7, cond:0.77, turb:0.02, DO:0.75, redox:120.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:20, DTW:21.4, pH:7.32, temp:13.7, cond:0.75, turb:0.02, DO:0.78, redox:119.9**

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 10:20                                                                            |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                                |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 200                                                                              |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 21.4                                                                             |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.32                                                                             |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 0.75                                                                             |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.78                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 13.7                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 119.9                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @10:20, DTW:21.4, pH:7.32, temp:13.7, cond:0.75, turb:0.02, DO:0.78, redox:119.9 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 10:20                                                                            |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:20 |
| Color         | Clear |
| Notable odors | None  |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

Lessica Frantel

Signed 2019-06-05 14:42:04 UTC

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## 2019-06-06, MW-14-58, MW-14-58

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-06 09:25:50 EDT by Jessica Fransted |
| Updated                                                                                           | 2019-06-06 13:20:32 EDT by Christine Gregg  |
| Location                                                                                          | 42.7382319, -84.587121                      |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-06                                  |
| Well Identification                                                                               | MW-14-58                                    |
| Well ID                                                                                           | MW-14-58                                    |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                         |
| Replicate No. (e.g. Dup)                                                                          | Dup-01_060619                               |
| Weather                                                                                           | Cloudy 60s                                  |

### Evacuation Details

|                                                                                                                                                                                                                                                                     |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                    | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                            | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                         | 14.03         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1 \text{ foot}$ ] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                        | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                              | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                                       | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                            | 24            |
| Purge Start                                                                                                                                                                                                                                                         | 10:00         |

### @10:00, DTW:6.57, pH:6.68, temp:14.1, cond:5.55, turb:0.02, DO:0.36, redox:-101.9

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 10:00                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 6.57                                                                              |
| pH                            | 6.68                                                                              |
| Conductivity (mS/cm)          | 5.55                                                                              |
| Turbidity (NTU)               | 0.02                                                                              |
| Dissolved Oxygen (mg/L)       | 0.36                                                                              |
| Temperature (Degrees Celsius) | 14.1                                                                              |
| Redox (ORP mV)                | -101.9                                                                            |
| parameters                    | @10:00, DTW:6.57, pH:6.68, temp:14.1, cond:5.55, turb:0.02, DO:0.36, redox:-101.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:05, DTW:6.57, pH:6.73, temp:13.9, cond:5.64, turb:0.02, DO:0.96, redox:-98.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Depth to Water (ft)           | 6.57                                                                             |
| pH                            | 6.73                                                                             |
| Conductivity (mS/cm)          | 5.64                                                                             |
| Turbidity (NTU)               | 0.02                                                                             |
| Dissolved Oxygen (mg/L)       | 0.96                                                                             |
| Temperature (Degrees Celsius) | 13.9                                                                             |
| Redox (ORP mV)                | -98.7                                                                            |
| parameters                    | @10:05, DTW:6.57, pH:6.73, temp:13.9, cond:5.64, turb:0.02, DO:0.96, redox:-98.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:10, DTW:6.57, pH:6.73, temp:13.7, cond:5.57, turb:0.02, DO:0.23, redox:-100.7**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 6.57                                                                              |
| pH                               | 6.73                                                                              |
| Conductivity (mS/cm)             | 5.57                                                                              |
| Turbidity (NTU)                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)          | 0.23                                                                              |
| Temperature (Degrees Celsius)    | 13.7                                                                              |
| Redox (ORP mV)                   | -100.7                                                                            |
| parameters                       | @10:10, DTW:6.57, pH:6.73, temp:13.7, cond:5.57, turb:0.02, DO:0.23, redox:-100.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:15, DTW:6.57, pH:6.75, temp:13.8, cond:5.43, turb:0.02, DO:0.18, redox:-102.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 6.57                                                                              |
| pH                               | 6.75                                                                              |
| Conductivity (mS/cm)             | 5.43                                                                              |
| Turbidity (NTU)                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)          | 0.18                                                                              |
| Temperature (Degrees Celsius)    | 13.8                                                                              |
| Redox (ORP mV)                   | -102.9                                                                            |
| parameters                       | @10:15, DTW:6.57, pH:6.75, temp:13.8, cond:5.43, turb:0.02, DO:0.18, redox:-102.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:20, DTW:6.57, pH:6.78, temp:13.8, cond:5.2, turb:0.02, DO:0.15, redox:-105.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:20 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 6.57                                                                             |
| pH                            | 6.78                                                                             |
| Conductivity (mS/cm)          | 5.2                                                                              |
| Turbidity (NTU)               | 0.02                                                                             |
| Dissolved Oxygen (mg/L)       | 0.15                                                                             |
| Temperature (Degrees Celsius) | 13.8                                                                             |
| Redox (ORP mV)                | -105.2                                                                           |
| parameters                    | @10:20, DTW:6.57, pH:6.78, temp:13.8, cond:5.2, turb:0.02, DO:0.15, redox:-105.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:25, DTW:6.57, pH:6.8, temp:13.9, cond:4.99, turb:0.02, DO:0.14, redox:-107.4

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 6.57                                                                             |
| pH                               | 6.8                                                                              |
| Conductivity (mS/cm)             | 4.99                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.14                                                                             |
| Temperature (Degrees Celsius)    | 13.9                                                                             |
| Redox (ORP mV)                   | -107.4                                                                           |
| parameters                       | @10:25, DTW:6.57, pH:6.8, temp:13.9, cond:4.99, turb:0.02, DO:0.14, redox:-107.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 10:25 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:25 |
| Color         | Clear |
| Notable odors | None  |

## SVOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | SVOCs      |
| Container Type       | 40 mL Vial |
| Number of Containers | 6          |
| Preservative         | HCL        |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 6           |
| Preservative         | HCL         |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 500 mL Plastic |
| Number of Containers | 4              |
| Preservative         | None           |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, reading "Jessi Frankel". The signature is written in a cursive, flowing style.

Signed 2019-06-06 14:59:57 UTC

## 2019-12-04, MW-14-58

|                                                                                                   |                                           |
|---------------------------------------------------------------------------------------------------|-------------------------------------------|
| Created                                                                                           | 2019-12-04 13:44:17 UTC by Melissa Weaver |
| Updated                                                                                           | 2019-12-04 15:56:14 UTC by Melissa Weaver |
| Location                                                                                          | 42.738266097587, -84.5880570532252        |
| Project Number                                                                                    | 30006870                                  |
| Project Name / Location                                                                           | RACER Lansing, MI                         |
| Sampler Name                                                                                      | Melissa Weaver                            |
| Date                                                                                              | 2019-12-04                                |
| Well ID                                                                                           | MW-14-58                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                       |
| Weather                                                                                           | 35 cloudy                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 13.89         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 29.89         |
| Water Column                                                                                                                                                                                                                                                 | 16            |
| Gallons in Well                                                                                                                                                                                                                                              | 2.6           |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 27            |
| Purge Start                                                                                                                                                                                                                                                  | 09:15         |

### @09:30, DTW:13.92, pH:6.61, temp:12.4, cond:5.51, turb:19.6, DO:0.18, redox:-20.2

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 09:30                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 13.92                                                                             |
| pH                            | 6.61                                                                              |
| Conductivity (mS/cm)          | 5.51                                                                              |
| Turbidity (NTU)               | 19.6                                                                              |
| Dissolved Oxygen (mg/L)       | 0.18                                                                              |
| Temperature (Degrees Celsius) | 12.4                                                                              |
| Redox (ORP mV)                | -20.2                                                                             |
| parameters                    | @09:30, DTW:13.92, pH:6.61, temp:12.4, cond:5.51, turb:19.6, DO:0.18, redox:-20.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:35, DTW:13.93, pH:6.62, temp:12.9, cond:5.51, turb:16.3, DO:0.18, redox:-27.2

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:35 |
| Minutes Elapsed between readings | 5     |



|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 13.93                                                                             |
| pH                            | 6.62                                                                              |
| Conductivity (mS/cm)          | 5.51                                                                              |
| Turbidity (NTU)               | 16.3                                                                              |
| Dissolved Oxygen (mg/L)       | 0.18                                                                              |
| Temperature (Degrees Celsius) | 12.9                                                                              |
| Redox (ORP mV)                | -27.2                                                                             |
| parameters                    | @09:35, DTW:13.93, pH:6.62, temp:12.9, cond:5.51, turb:16.3, DO:0.18, redox:-27.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:40, DTW:13.94, pH:6.62, temp:12.9, cond:5.5, turb:8.34, DO:0.13, redox:-31**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 13.94                                                                          |
| pH                               | 6.62                                                                           |
| Conductivity (mS/cm)             | 5.5                                                                            |
| Turbidity (NTU)                  | 8.34                                                                           |
| Dissolved Oxygen (mg/L)          | 0.13                                                                           |
| Temperature (Degrees Celsius)    | 12.9                                                                           |
| Redox (ORP mV)                   | -31                                                                            |
| parameters                       | @09:40, DTW:13.94, pH:6.62, temp:12.9, cond:5.5, turb:8.34, DO:0.13, redox:-31 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:45, DTW:13.94, pH:6.62, temp:13.1, cond:5.47, turb:5.84, DO:0.13, redox:-33.3**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 13.94                                                                             |
| pH                               | 6.62                                                                              |
| Conductivity (mS/cm)             | 5.47                                                                              |
| Turbidity (NTU)                  | 5.84                                                                              |
| Dissolved Oxygen (mg/L)          | 0.13                                                                              |
| Temperature (Degrees Celsius)    | 13.1                                                                              |
| Redox (ORP mV)                   | -33.3                                                                             |
| parameters                       | @09:45, DTW:13.94, pH:6.62, temp:13.1, cond:5.47, turb:5.84, DO:0.13, redox:-33.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:50, DTW:13.94, pH:6.62, temp:12.5, cond:5.45, turb:5.55, DO:0.12, redox:-34.8**

|              |       |
|--------------|-------|
| Reading Time | 09:50 |
|--------------|-------|

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 13.94                                                                             |
| pH                               | 6.62                                                                              |
| Conductivity (mS/cm)             | 5.45                                                                              |
| Turbidity (NTU)                  | 5.55                                                                              |
| Dissolved Oxygen (mg/L)          | 0.12                                                                              |
| Temperature (Degrees Celsius)    | 12.5                                                                              |
| Redox (ORP mV)                   | -34.8                                                                             |
| parameters                       | @09:50, DTW:13.94, pH:6.62, temp:12.5, cond:5.45, turb:5.55, DO:0.12, redox:-34.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:55, DTW:13.94, pH:6.63, temp:13, cond:5.27, turb:4.1, DO:0.1, redox:-36.5**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 09:55                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 13.94                                                                         |
| pH                               | 6.63                                                                          |
| Conductivity (mS/cm)             | 5.27                                                                          |
| Turbidity (NTU)                  | 4.1                                                                           |
| Dissolved Oxygen (mg/L)          | 0.1                                                                           |
| Temperature (Degrees Celsius)    | 13                                                                            |
| Redox (ORP mV)                   | -36.5                                                                         |
| parameters                       | @09:55, DTW:13.94, pH:6.63, temp:13, cond:5.27, turb:4.1, DO:0.1, redox:-36.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:00, DTW:13.94, pH:6.64, temp:12.8, cond:5.09, turb:2.86, DO:0.09, redox:-38.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:00                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 13.94                                                                             |
| pH                               | 6.64                                                                              |
| Conductivity (mS/cm)             | 5.09                                                                              |
| Turbidity (NTU)                  | 2.86                                                                              |
| Dissolved Oxygen (mg/L)          | 0.09                                                                              |
| Temperature (Degrees Celsius)    | 12.8                                                                              |
| Redox (ORP mV)                   | -38.5                                                                             |
| parameters                       | @10:00, DTW:13.94, pH:6.64, temp:12.8, cond:5.09, turb:2.86, DO:0.09, redox:-38.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:05, DTW:13.94, pH:6.65, temp:12.7, cond:4.95, turb:0.86, DO:0.08, redox:-39.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:05                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 13.94                                                                             |
| pH                               | 6.65                                                                              |
| Conductivity (mS/cm)             | 4.95                                                                              |
| Turbidity (NTU)                  | 0.86                                                                              |
| Dissolved Oxygen (mg/L)          | 0.08                                                                              |
| Temperature (Degrees Celsius)    | 12.7                                                                              |
| Redox (ORP mV)                   | -39.9                                                                             |
| parameters                       | @10:05, DTW:13.94, pH:6.65, temp:12.7, cond:4.95, turb:0.86, DO:0.08, redox:-39.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:10, DTW:13.94, pH:6.65, temp:12.7, cond:4.85, turb:1.87, DO:0.09, redox:-40.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 13.94                                                                             |
| pH                               | 6.65                                                                              |
| Conductivity (mS/cm)             | 4.85                                                                              |
| Turbidity (NTU)                  | 1.87                                                                              |
| Dissolved Oxygen (mg/L)          | 0.09                                                                              |
| Temperature (Degrees Celsius)    | 12.7                                                                              |
| Redox (ORP mV)                   | -40.5                                                                             |
| parameters                       | @10:10, DTW:13.94, pH:6.65, temp:12.7, cond:4.85, turb:1.87, DO:0.09, redox:-40.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:15, DTW:13.94, pH:6.65, temp:13, cond:4.72, turb:0.02, DO:0.08, redox:-41.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 13.94                                                                           |
| pH                               | 6.65                                                                            |
| Conductivity (mS/cm)             | 4.72                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.08                                                                            |
| Temperature (Degrees Celsius)    | 13                                                                              |
| Redox (ORP mV)                   | -41.2                                                                           |
| parameters                       | @10:15, DTW:13.94, pH:6.65, temp:13, cond:4.72, turb:0.02, DO:0.08, redox:-41.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:20, DTW:13.94, pH:6.66, temp:12.5, cond:4.63, turb:0.21, DO:0.08, redox:-41.8**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 13.94                                                                             |
| pH                               | 6.66                                                                              |
| Conductivity (mS/cm)             | 4.63                                                                              |
| Turbidity (NTU)                  | 0.21                                                                              |
| Dissolved Oxygen (mg/L)          | 0.08                                                                              |
| Temperature (Degrees Celsius)    | 12.5                                                                              |
| Redox (ORP mV)                   | -41.8                                                                             |
| parameters                       | @10:20, DTW:13.94, pH:6.66, temp:12.5, cond:4.63, turb:0.21, DO:0.08, redox:-41.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:25, DTW:13.94, pH:6.66, temp:12.5, cond:4.54, turb:0.02, DO:0.09, redox:-42.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:25                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 13.94                                                                             |
| pH                               | 6.66                                                                              |
| Conductivity (mS/cm)             | 4.54                                                                              |
| Turbidity (NTU)                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)          | 0.09                                                                              |
| Temperature (Degrees Celsius)    | 12.5                                                                              |
| Redox (ORP mV)                   | -42.2                                                                             |
| parameters                       | @10:25, DTW:13.94, pH:6.66, temp:12.5, cond:4.54, turb:0.02, DO:0.09, redox:-42.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:30, DTW:13.94, pH:6.67, temp:12.8, cond:4.44, turb:0.02, DO:0.09, redox:-43.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:30                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 13.94                                                                             |
| pH                               | 6.67                                                                              |
| Conductivity (mS/cm)             | 4.44                                                                              |
| Turbidity (NTU)                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)          | 0.09                                                                              |
| Temperature (Degrees Celsius)    | 12.8                                                                              |
| Redox (ORP mV)                   | -43.1                                                                             |
| parameters                       | @10:30, DTW:13.94, pH:6.67, temp:12.8, cond:4.44, turb:0.02, DO:0.09, redox:-43.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 10:30 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 10:30 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                |                |
|----------------|----------------|
| Container Type | 250 mL Plastic |
|----------------|----------------|

|                      |   |
|----------------------|---|
| Number of Containers | 2 |
|----------------------|---|

|              |      |
|--------------|------|
| Preservative | None |
|--------------|------|

### Well Information

|               |         |
|---------------|---------|
| Well Location | Plant 2 |
|---------------|---------|

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature

A handwritten signature in black ink, consisting of stylized, cursive letters that appear to be 'M' and 'W'.

Signed 2019-12-04 13:47:37 UTC

## 2019-06-06, MW-14-59, MW-14-59

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-06 11:07:00 EDT by Jessica Fransted |
| Updated                                                                                           | 2019-06-06 15:37:21 EDT by Christine Gregg  |
| Location                                                                                          | 42.7384439, -84.5850509                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-06                                  |
| Well Identification                                                                               | MW-14-59                                    |
| Well ID                                                                                           | MW-14-59                                    |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                         |
| Weather                                                                                           | Cloudy 60s                                  |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 7.27          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 18.88         |
| Water Column                                                                                                                                                                                                                                              | 11.61         |
| Gallons in Well                                                                                                                                                                                                                                           | 1.89          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 10            |
| Purge Start                                                                                                                                                                                                                                               | 11:25         |

### @11:30, DTW:6.57, pH:7.59, temp:13.9, cond:0.65, turb:0.02, DO:0.17, redox:-32.5

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 11:30                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 6.57                                                                             |
| pH                            | 7.59                                                                             |
| Conductivity (mS/cm)          | 0.65                                                                             |
| Turbidity (NTU)               | 0.02                                                                             |
| Dissolved Oxygen (mg/L)       | 0.17                                                                             |
| Temperature (Degrees Celsius) | 13.9                                                                             |
| Redox (ORP mV)                | -32.5                                                                            |
| parameters                    | @11:30, DTW:6.57, pH:7.59, temp:13.9, cond:0.65, turb:0.02, DO:0.17, redox:-32.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:35, DTW:6.57, pH:7.33, temp:13.4, cond:0.64, turb:0.02, DO:0.13, redox:-31.2

|              |       |
|--------------|-------|
| Reading Time | 11:35 |
|--------------|-------|

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 6.57                                                                             |
| pH                               | 7.33                                                                             |
| Conductivity (mS/cm)             | 0.64                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.13                                                                             |
| Temperature (Degrees Celsius)    | 13.4                                                                             |
| Redox (ORP mV)                   | -31.2                                                                            |
| parameters                       | @11:35, DTW:6.57, pH:7.33, temp:13.4, cond:0.64, turb:0.02, DO:0.13, redox:-31.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:40, DTW:6.57, pH:7.29, temp:13.1, cond:0.644, turb:0.02, DO:0.12, redox:-34.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:40                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 6.57                                                                              |
| pH                               | 7.29                                                                              |
| Conductivity (mS/cm)             | 0.644                                                                             |
| Turbidity (NTU)                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)          | 0.12                                                                              |
| Temperature (Degrees Celsius)    | 13.1                                                                              |
| Redox (ORP mV)                   | -34.9                                                                             |
| parameters                       | @11:40, DTW:6.57, pH:7.29, temp:13.1, cond:0.644, turb:0.02, DO:0.12, redox:-34.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:45, DTW:6.57, pH:7.28, temp:13.4, cond:0.65, turb:0.02, DO:0.14, redox:-38.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 6.57                                                                             |
| pH                               | 7.28                                                                             |
| Conductivity (mS/cm)             | 0.65                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.14                                                                             |
| Temperature (Degrees Celsius)    | 13.4                                                                             |
| Redox (ORP mV)                   | -38.6                                                                            |
| parameters                       | @11:45, DTW:6.57, pH:7.28, temp:13.4, cond:0.65, turb:0.02, DO:0.14, redox:-38.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:50, DTW:6.57, pH:7.28, temp:13.4, cond:0.66, turb:0.02, DO:0.16, redox:-38**

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 11:50                                                                          |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                              |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 200                                                                            |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 6.57                                                                           |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.28                                                                           |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 0.66                                                                           |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.16                                                                           |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 13.4                                                                           |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -38                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @11:50, DTW:6.57, pH:7.28, temp:13.4, cond:0.66, turb:0.02, DO:0.16, redox:-38 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 23:50                                                                          |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 23:50 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## SVOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | SVOCs      |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 500 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |



Signature

Jessica Frønsted

Signed 2019-06-06 15:12:29 UTC

---

## 2019-12-03, MW-14-59

|                                                                                                   |                                           |
|---------------------------------------------------------------------------------------------------|-------------------------------------------|
| Created                                                                                           | 2019-12-03 20:25:34 UTC by Melissa Weaver |
| Updated                                                                                           | 2019-12-08 22:03:22 UTC by Melissa Weaver |
| Location                                                                                          | 42.7384042321171, -84.5851239190293       |
| Project Number                                                                                    | 30006870                                  |
| Project Name / Location                                                                           | RACER Lansing, MI                         |
| Sampler Name                                                                                      | Melissa Weaver                            |
| Date                                                                                              | 2019-12-03                                |
| Well ID                                                                                           | MW-14-59                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                       |
| Weather                                                                                           | 32 cloudy                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 7.19          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 18.8          |
| Water Column                                                                                                                                                                                                                                                 | 11.61         |
| Gallons in Well                                                                                                                                                                                                                                              | 1.89          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 17            |
| Purge Start                                                                                                                                                                                                                                                  | 15:28         |

### @15:35, DTW:7.26, pH:7.09, temp:9.5, cond:0.71, turb:3.78, DO:0.76, redox:75.7

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 15:35                                                                          |
| Rate (mL/min)                 | 150                                                                            |
| Depth to Water (ft)           | 7.26                                                                           |
| pH                            | 7.09                                                                           |
| Conductivity (mS/cm)          | 0.71                                                                           |
| Turbidity (NTU)               | 3.78                                                                           |
| Dissolved Oxygen (mg/L)       | 0.76                                                                           |
| Temperature (Degrees Celsius) | 9.5                                                                            |
| Redox (ORP mV)                | 75.7                                                                           |
| parameters                    | @15:35, DTW:7.26, pH:7.09, temp:9.5, cond:0.71, turb:3.78, DO:0.76, redox:75.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:40, DTW:7.29, pH:7.07, temp:10, cond:0.697, turb:2.98, DO:0.65, redox:71.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:40 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Rate (mL/min)                 | 150                                                                            |
| Depth to Water (ft)           | 7.29                                                                           |
| pH                            | 7.07                                                                           |
| Conductivity (mS/cm)          | 0.697                                                                          |
| Turbidity (NTU)               | 2.98                                                                           |
| Dissolved Oxygen (mg/L)       | 0.65                                                                           |
| Temperature (Degrees Celsius) | 10                                                                             |
| Redox (ORP mV)                | 71.7                                                                           |
| parameters                    | @15:40, DTW:7.29, pH:7.07, temp:10, cond:0.697, turb:2.98, DO:0.65, redox:71.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:45, DTW:7.36, pH:7.11, temp:10.6, cond:0.7, turb:2.78, DO:0.59, redox:68.8**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:45                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 150                                                                            |
| Depth to Water (ft)              | 7.36                                                                           |
| pH                               | 7.11                                                                           |
| Conductivity (mS/cm)             | 0.7                                                                            |
| Turbidity (NTU)                  | 2.78                                                                           |
| Dissolved Oxygen (mg/L)          | 0.59                                                                           |
| Temperature (Degrees Celsius)    | 10.6                                                                           |
| Redox (ORP mV)                   | 68.8                                                                           |
| parameters                       | @15:45, DTW:7.36, pH:7.11, temp:10.6, cond:0.7, turb:2.78, DO:0.59, redox:68.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:50, DTW:7.43, pH:7.13, temp:11.5, cond:0.7, turb:4.57, DO:0.52, redox:67**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 15:50                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 7.43                                                                         |
| pH                               | 7.13                                                                         |
| Conductivity (mS/cm)             | 0.7                                                                          |
| Turbidity (NTU)                  | 4.57                                                                         |
| Dissolved Oxygen (mg/L)          | 0.52                                                                         |
| Temperature (Degrees Celsius)    | 11.5                                                                         |
| Redox (ORP mV)                   | 67                                                                           |
| parameters                       | @15:50, DTW:7.43, pH:7.13, temp:11.5, cond:0.7, turb:4.57, DO:0.52, redox:67 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:55, DTW:7.46, pH:7.14, temp:11.5, cond:0.7, turb:2.59, DO:0.47, redox:64.4**

|              |       |
|--------------|-------|
| Reading Time | 15:55 |
|--------------|-------|

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 7.46                                                                           |
| pH                               | 7.14                                                                           |
| Conductivity (mS/cm)             | 0.7                                                                            |
| Turbidity (NTU)                  | 2.59                                                                           |
| Dissolved Oxygen (mg/L)          | 0.47                                                                           |
| Temperature (Degrees Celsius)    | 11.5                                                                           |
| Redox (ORP mV)                   | 64.4                                                                           |
| parameters                       | @15:55, DTW:7.46, pH:7.14, temp:11.5, cond:0.7, turb:2.59, DO:0.47, redox:64.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:00, DTW:7.49, pH:7.14, temp:12, cond:0.7, turb:3.6, DO:0.35, redox:61.3**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 16:00                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 200                                                                         |
| Depth to Water (ft)              | 7.49                                                                        |
| pH                               | 7.14                                                                        |
| Conductivity (mS/cm)             | 0.7                                                                         |
| Turbidity (NTU)                  | 3.6                                                                         |
| Dissolved Oxygen (mg/L)          | 0.35                                                                        |
| Temperature (Degrees Celsius)    | 12                                                                          |
| Redox (ORP mV)                   | 61.3                                                                        |
| parameters                       | @16:00, DTW:7.49, pH:7.14, temp:12, cond:0.7, turb:3.6, DO:0.35, redox:61.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:05, DTW:7.52, pH:7.22, temp:12.3, cond:0.72, turb:5.45, DO:0.26, redox:52.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 16:05                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 7.52                                                                            |
| pH                               | 7.22                                                                            |
| Conductivity (mS/cm)             | 0.72                                                                            |
| Turbidity (NTU)                  | 5.45                                                                            |
| Dissolved Oxygen (mg/L)          | 0.26                                                                            |
| Temperature (Degrees Celsius)    | 12.3                                                                            |
| Redox (ORP mV)                   | 52.1                                                                            |
| parameters                       | @16:05, DTW:7.52, pH:7.22, temp:12.3, cond:0.72, turb:5.45, DO:0.26, redox:52.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:10, DTW:7.51, pH:7.22, temp:12, cond:0.72, turb:8.52, DO:0.3, redox:46.2**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 16:10                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 7.51                                                                         |
| pH                               | 7.22                                                                         |
| Conductivity (mS/cm)             | 0.72                                                                         |
| Turbidity (NTU)                  | 8.52                                                                         |
| Dissolved Oxygen (mg/L)          | 0.3                                                                          |
| Temperature (Degrees Celsius)    | 12                                                                           |
| Redox (ORP mV)                   | 46.2                                                                         |
| parameters                       | @16:10, DTW:7.51, pH:7.22, temp:12, cond:0.72, turb:8.52, DO:0.3, redox:46.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:15, DTW:7.51, pH:7.17, temp:12, cond:0.73, turb:7.97, DO:0.23, redox:44.3**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 16:15                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 7.51                                                                          |
| pH                               | 7.17                                                                          |
| Conductivity (mS/cm)             | 0.73                                                                          |
| Turbidity (NTU)                  | 7.97                                                                          |
| Dissolved Oxygen (mg/L)          | 0.23                                                                          |
| Temperature (Degrees Celsius)    | 12                                                                            |
| Redox (ORP mV)                   | 44.3                                                                          |
| parameters                       | @16:15, DTW:7.51, pH:7.17, temp:12, cond:0.73, turb:7.97, DO:0.23, redox:44.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:20, DTW:7.52, pH:7.16, temp:12.2, cond:0.73, turb:8.57, DO:0.21, redox:39.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 16:20                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 7.52                                                                            |
| pH                               | 7.16                                                                            |
| Conductivity (mS/cm)             | 0.73                                                                            |
| Turbidity (NTU)                  | 8.57                                                                            |
| Dissolved Oxygen (mg/L)          | 0.21                                                                            |
| Temperature (Degrees Celsius)    | 12.2                                                                            |
| Redox (ORP mV)                   | 39.4                                                                            |
| parameters                       | @16:20, DTW:7.52, pH:7.16, temp:12.2, cond:0.73, turb:8.57, DO:0.21, redox:39.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@16:25, DTW:7.52, pH:7.16, temp:12.1, cond:0.73, turb:6.55, DO:0.2, redox:35.4**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 16:25                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 7.52                                                                           |
| pH                               | 7.16                                                                           |
| Conductivity (mS/cm)             | 0.73                                                                           |
| Turbidity (NTU)                  | 6.55                                                                           |
| Dissolved Oxygen (mg/L)          | 0.2                                                                            |
| Temperature (Degrees Celsius)    | 12.1                                                                           |
| Redox (ORP mV)                   | 35.4                                                                           |
| parameters                       | @16:25, DTW:7.52, pH:7.16, temp:12.1, cond:0.73, turb:6.55, DO:0.2, redox:35.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@16:30, DTW:7.52, pH:7.14, temp:12.3, cond:0.73, turb:6.7, DO:0.2, redox:34.4**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 16:30                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 7.52                                                                          |
| pH                               | 7.14                                                                          |
| Conductivity (mS/cm)             | 0.73                                                                          |
| Turbidity (NTU)                  | 6.7                                                                           |
| Dissolved Oxygen (mg/L)          | 0.2                                                                           |
| Temperature (Degrees Celsius)    | 12.3                                                                          |
| Redox (ORP mV)                   | 34.4                                                                          |
| parameters                       | @16:30, DTW:7.52, pH:7.14, temp:12.3, cond:0.73, turb:6.7, DO:0.2, redox:34.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@16:35, DTW:7.52, pH:7.12, temp:12.2, cond:0.74, turb:7.04, DO:0.2, redox:33**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 16:35                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 7.52                                                                         |
| pH                               | 7.12                                                                         |
| Conductivity (mS/cm)             | 0.74                                                                         |
| Turbidity (NTU)                  | 7.04                                                                         |
| Dissolved Oxygen (mg/L)          | 0.2                                                                          |
| Temperature (Degrees Celsius)    | 12.2                                                                         |
| Redox (ORP mV)                   | 33                                                                           |
| parameters                       | @16:35, DTW:7.52, pH:7.12, temp:12.2, cond:0.74, turb:7.04, DO:0.2, redox:33 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 16:35 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 16:35 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                |                |
|----------------|----------------|
| Container Type | 250 mL Plastic |
|----------------|----------------|

|                      |   |
|----------------------|---|
| Number of Containers | 2 |
|----------------------|---|

|              |      |
|--------------|------|
| Preservative | None |
|--------------|------|

### Well Information

|               |         |
|---------------|---------|
| Well Location | Plant 2 |
|---------------|---------|

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature

A handwritten signature in black ink, appearing to be 'MLH'.

Signed 2019-12-03 20:30:12 UTC

## 2019-06-06, MW-14-60, MW-14-60

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-06 12:22:58 EDT by Jessica Fransted |
| Updated                                                                                           | 2019-06-06 15:40:14 EDT by Christine Gregg  |
| Location                                                                                          | 42.7381694, -84.5838451                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-06                                  |
| Well Identification                                                                               | MW-14-60                                    |
| Well ID                                                                                           | MW-14-60                                    |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                         |
| Weather                                                                                           | Cloudy 60s                                  |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 12.27         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 17            |
| Purge Start                                                                                                                                                                                                                                                  | 12:40         |

### @12:45, DTW:6.57, pH:7.62, temp:13.4, cond:1.17, turb:0.02, DO:0.63, redox:-138.7

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 12:45                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 6.57                                                                              |
| pH                            | 7.62                                                                              |
| Conductivity (mS/cm)          | 1.17                                                                              |
| Turbidity (NTU)               | 0.02                                                                              |
| Dissolved Oxygen (mg/L)       | 0.63                                                                              |
| Temperature (Degrees Celsius) | 13.4                                                                              |
| Redox (ORP mV)                | -138.7                                                                            |
| parameters                    | @12:45, DTW:6.57, pH:7.62, temp:13.4, cond:1.17, turb:0.02, DO:0.63, redox:-138.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:50, DTW:6.57, pH:7.4, temp:13.3, cond:1.14, turb:0.02, DO:0.26, redox:-130.8

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 6.57  |



|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| pH                            | 7.4                                                                              |
| Conductivity (mS/cm)          | 1.14                                                                             |
| Turbidity (NTU)               | 0.02                                                                             |
| Dissolved Oxygen (mg/L)       | 0.26                                                                             |
| Temperature (Degrees Celsius) | 13.3                                                                             |
| Redox (ORP mV)                | -130.8                                                                           |
| parameters                    | @12:50, DTW:6.57, pH:7.4, temp:13.3, cond:1.14, turb:0.02, DO:0.26, redox:-130.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:55, DTW:6.57, pH:7.38, temp:13.3, cond:1.12, turb:0.02, DO:0.2, redox:-130.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 6.57                                                                             |
| pH                               | 7.38                                                                             |
| Conductivity (mS/cm)             | 1.12                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.2                                                                              |
| Temperature (Degrees Celsius)    | 13.3                                                                             |
| Redox (ORP mV)                   | -130.7                                                                           |
| parameters                       | @12:55, DTW:6.57, pH:7.38, temp:13.3, cond:1.12, turb:0.02, DO:0.2, redox:-130.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:00, DTW:6.57, pH:7.37, temp:13.3, cond:1.11, turb:0.02, DO:0.14, redox:-130.7**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:00                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 6.57                                                                              |
| pH                               | 7.37                                                                              |
| Conductivity (mS/cm)             | 1.11                                                                              |
| Turbidity (NTU)                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)          | 0.14                                                                              |
| Temperature (Degrees Celsius)    | 13.3                                                                              |
| Redox (ORP mV)                   | -130.7                                                                            |
| parameters                       | @13:00, DTW:6.57, pH:7.37, temp:13.3, cond:1.11, turb:0.02, DO:0.14, redox:-130.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 13:00 |
|-----------|-------|

### **Sample Information**

|             |       |
|-------------|-------|
| Sample Time | 13:00 |
| Color       | Clear |

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### SVOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | SVOCs      |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 500 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature



Signed 2019-06-06 17:19:28 UTC

## 2019-12-03, MW-14-60

|                                                                                                   |                                           |
|---------------------------------------------------------------------------------------------------|-------------------------------------------|
| Created                                                                                           | 2019-12-03 18:30:28 UTC by Melissa Weaver |
| Updated                                                                                           | 2019-12-03 22:06:47 UTC by Melissa Weaver |
| Location                                                                                          | 42.7381532779361, -84.583746101786        |
| Project Number                                                                                    | 30006870                                  |
| Project Name / Location                                                                           | RACER Lansing, MI                         |
| Sampler Name                                                                                      | Melissa Weaver                            |
| Date                                                                                              | 2019-12-03                                |
| Well ID                                                                                           | MW-14-60                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                       |
| Weather                                                                                           | 30 cloudy                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 11.55         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 23.5          |
| Water Column                                                                                                                                                                                                                                                 | 11.95         |
| Gallons in Well                                                                                                                                                                                                                                              | 1.94          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 20            |
| Purge Start                                                                                                                                                                                                                                                  | 14:00         |

### @14:05, DTW:11.55, pH:7.22, temp:12.5, cond:1.15, turb:18, DO:0.32, redox:69.6

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 14:05                                                                          |
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 11.55                                                                          |
| pH                            | 7.22                                                                           |
| Conductivity (mS/cm)          | 1.15                                                                           |
| Turbidity (NTU)               | 18                                                                             |
| Dissolved Oxygen (mg/L)       | 0.32                                                                           |
| Temperature (Degrees Celsius) | 12.5                                                                           |
| Redox (ORP mV)                | 69.6                                                                           |
| parameters                    | @14:05, DTW:11.55, pH:7.22, temp:12.5, cond:1.15, turb:18, DO:0.32, redox:69.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:10, DTW:11.58, pH:7.29, temp:12.5, cond:1.18, turb:9.25, DO:7.3, redox:11.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:10 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 11.58                                                                           |
| pH                            | 7.29                                                                            |
| Conductivity (mS/cm)          | 1.18                                                                            |
| Turbidity (NTU)               | 9.25                                                                            |
| Dissolved Oxygen (mg/L)       | 7.3                                                                             |
| Temperature (Degrees Celsius) | 12.5                                                                            |
| Redox (ORP mV)                | 11.5                                                                            |
| parameters                    | @14:10, DTW:11.58, pH:7.29, temp:12.5, cond:1.18, turb:9.25, DO:7.3, redox:11.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:15, DTW:11.58, pH:7.26, temp:12.4, cond:1.18, turb:10.8, DO:0.18, redox:-6**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:15                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 11.58                                                                          |
| pH                               | 7.26                                                                           |
| Conductivity (mS/cm)             | 1.18                                                                           |
| Turbidity (NTU)                  | 10.8                                                                           |
| Dissolved Oxygen (mg/L)          | 0.18                                                                           |
| Temperature (Degrees Celsius)    | 12.4                                                                           |
| Redox (ORP mV)                   | -6                                                                             |
| parameters                       | @14:15, DTW:11.58, pH:7.26, temp:12.4, cond:1.18, turb:10.8, DO:0.18, redox:-6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:20, DTW:11.58, pH:7.23, temp:11.8, cond:1.18, turb:6.25, DO:0.15, redox:-18**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:20                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 11.58                                                                           |
| pH                               | 7.23                                                                            |
| Conductivity (mS/cm)             | 1.18                                                                            |
| Turbidity (NTU)                  | 6.25                                                                            |
| Dissolved Oxygen (mg/L)          | 0.15                                                                            |
| Temperature (Degrees Celsius)    | 11.8                                                                            |
| Redox (ORP mV)                   | -18                                                                             |
| parameters                       | @14:20, DTW:11.58, pH:7.23, temp:11.8, cond:1.18, turb:6.25, DO:0.15, redox:-18 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:25, DTW:11.56, pH:7.18, temp:11.5, cond:1.18, turb:5.59, DO:0.16, redox:-22.2**

|              |       |
|--------------|-------|
| Reading Time | 14:25 |
|--------------|-------|

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 11.56                                                                             |
| pH                               | 7.18                                                                              |
| Conductivity (mS/cm)             | 1.18                                                                              |
| Turbidity (NTU)                  | 5.59                                                                              |
| Dissolved Oxygen (mg/L)          | 0.16                                                                              |
| Temperature (Degrees Celsius)    | 11.5                                                                              |
| Redox (ORP mV)                   | -22.2                                                                             |
| parameters                       | @14:25, DTW:11.56, pH:7.18, temp:11.5, cond:1.18, turb:5.59, DO:0.16, redox:-22.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:30, DTW:11.56, pH:7.18, temp:11.5, cond:1.18, turb:5.5, DO:0.14, redox:-25.9**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 11.56                                                                            |
| pH                               | 7.18                                                                             |
| Conductivity (mS/cm)             | 1.18                                                                             |
| Turbidity (NTU)                  | 5.5                                                                              |
| Dissolved Oxygen (mg/L)          | 0.14                                                                             |
| Temperature (Degrees Celsius)    | 11.5                                                                             |
| Redox (ORP mV)                   | -25.9                                                                            |
| parameters                       | @14:30, DTW:11.56, pH:7.18, temp:11.5, cond:1.18, turb:5.5, DO:0.14, redox:-25.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:35, DTW:11.56, pH:7.18, temp:11.6, cond:1.18, turb:4.91, DO:0.13, redox:-26.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 11.56                                                                             |
| pH                               | 7.18                                                                              |
| Conductivity (mS/cm)             | 1.18                                                                              |
| Turbidity (NTU)                  | 4.91                                                                              |
| Dissolved Oxygen (mg/L)          | 0.13                                                                              |
| Temperature (Degrees Celsius)    | 11.6                                                                              |
| Redox (ORP mV)                   | -26.4                                                                             |
| parameters                       | @14:35, DTW:11.56, pH:7.18, temp:11.6, cond:1.18, turb:4.91, DO:0.13, redox:-26.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:40, DTW:11.56, pH:7.17, temp:11.5, cond:1.18, turb:5.95, DO:0.13, redox:-30.6**

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 14:40                                                                             |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                                 |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 200                                                                               |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 11.56                                                                             |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.17                                                                              |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1.18                                                                              |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 5.95                                                                              |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.13                                                                              |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 11.5                                                                              |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -30.6                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @14:40, DTW:11.56, pH:7.17, temp:11.5, cond:1.18, turb:5.95, DO:0.13, redox:-30.6 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                   |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 14:40                                                                             |

## Sample Information

|               |        |
|---------------|--------|
| Sample Time   | 14:40  |
| Color         | Turbid |
| Notable odors | None   |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature consisting of the letters 'M' and 'L' in a cursive, stylized font. The 'M' is formed with a single continuous stroke, and the 'L' is also formed with a single continuous stroke, ending in a sharp upward hook.

Signed 2019-12-03 18:33:02 UTC

---

## 2019-06-13, MW-14-61, MW-14-61

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-13 12:23:20 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-13 12:42:20 EDT by Christine Gregg |
| Location                                                                                          | 42.73773104, -84.58386177                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-13                                 |
| Well Identification                                                                               | MW-14-61                                   |
| Well ID                                                                                           | MW-14-61                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy Rainy 60's                          |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 65.72         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 77.5          |
| Water Column                                                                                                                                                                                                                                              | 11.78         |
| Gallons in Well                                                                                                                                                                                                                                           | 1.91          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 75            |
| Purge Start                                                                                                                                                                                                                                               | 12:10         |

### @12:10, DTW:65.72, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 12:10                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 65.72                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @12:10, DTW:65.72, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:15, DTW:65.78, pH:7.04, temp:16.3, cond:1.53, turb:14.8, DO:5.38, redox:-65.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 65.78 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.04  |



|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.53                                                                              |
| Turbidity (NTU)               | 14.8                                                                              |
| Dissolved Oxygen (mg/L)       | 5.38                                                                              |
| Temperature (Degrees Celsius) | 16.3                                                                              |
| Redox (ORP mV)                | -65.7                                                                             |
| parameters                    | @12:15, DTW:65.78, pH:7.04, temp:16.3, cond:1.53, turb:14.8, DO:5.38, redox:-65.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:20, DTW:65.78, pH:6.9, temp:16.1, cond:1.66, turb:10.5, DO:1.07, redox:-69.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 65.78                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 6.9                                                                              |
| Conductivity (mS/cm)             | 1.66                                                                             |
| Turbidity (NTU)                  | 10.5                                                                             |
| Dissolved Oxygen (mg/L)          | 1.07                                                                             |
| Temperature (Degrees Celsius)    | 16.1                                                                             |
| Redox (ORP mV)                   | -69.1                                                                            |
| parameters                       | @12:20, DTW:65.78, pH:6.9, temp:16.1, cond:1.66, turb:10.5, DO:1.07, redox:-69.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:25, DTW:65.78, pH:6.89, temp:15.9, cond:1.67, turb:9.34, DO:0.93, redox:-69.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:25                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.78                                                                             |
| Milliliters Purged (total)       | 1500                                                                              |
| pH                               | 6.89                                                                              |
| Conductivity (mS/cm)             | 1.67                                                                              |
| Turbidity (NTU)                  | 9.34                                                                              |
| Dissolved Oxygen (mg/L)          | 0.93                                                                              |
| Temperature (Degrees Celsius)    | 15.9                                                                              |
| Redox (ORP mV)                   | -69.1                                                                             |
| parameters                       | @12:25, DTW:65.78, pH:6.89, temp:15.9, cond:1.67, turb:9.34, DO:0.93, redox:-69.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:30, DTW:65.78, pH:6.89, temp:15.8, cond:1.67, turb:8.23, DO:0.81, redox:-69**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:30 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                             |
| Depth to Water (ft)           | 65.78                                                                           |
| Milliliters Purged (total)    | 2000                                                                            |
| pH                            | 6.89                                                                            |
| Conductivity (mS/cm)          | 1.67                                                                            |
| Turbidity (NTU)               | 8.23                                                                            |
| Dissolved Oxygen (mg/L)       | 0.81                                                                            |
| Temperature (Degrees Celsius) | 15.8                                                                            |
| Redox (ORP mV)                | -69                                                                             |
| parameters                    | @12:30, DTW:65.78, pH:6.89, temp:15.8, cond:1.67, turb:8.23, DO:0.81, redox:-69 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:35, DTW:65.78, pH:6.88, temp:15.8, cond:1.67, turb:7.29, DO:0.79, redox:-68.8**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.78                                                                             |
| Milliliters Purged (total)       | 2500                                                                              |
| pH                               | 6.88                                                                              |
| Conductivity (mS/cm)             | 1.67                                                                              |
| Turbidity (NTU)                  | 7.29                                                                              |
| Dissolved Oxygen (mg/L)          | 0.79                                                                              |
| Temperature (Degrees Celsius)    | 15.8                                                                              |
| Redox (ORP mV)                   | -68.8                                                                             |
| parameters                       | @12:35, DTW:65.78, pH:6.88, temp:15.8, cond:1.67, turb:7.29, DO:0.79, redox:-68.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:40, DTW:65.78, pH:6.88, temp:15.7, cond:1.67, turb:6.54, DO:0.74, redox:-68.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:40                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.78                                                                             |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 6.88                                                                              |
| Conductivity (mS/cm)             | 1.67                                                                              |
| Turbidity (NTU)                  | 6.54                                                                              |
| Dissolved Oxygen (mg/L)          | 0.74                                                                              |
| Temperature (Degrees Celsius)    | 15.7                                                                              |
| Redox (ORP mV)                   | -68.4                                                                             |
| parameters                       | @12:40, DTW:65.78, pH:6.88, temp:15.7, cond:1.67, turb:6.54, DO:0.74, redox:-68.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:45, DTW:65.78, pH:6.88, temp:15.9, cond:1.68, turb:6.37, DO:0.75, redox:-68.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:45                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.78                                                                             |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 6.88                                                                              |
| Conductivity (mS/cm)             | 1.68                                                                              |
| Turbidity (NTU)                  | 6.37                                                                              |
| Dissolved Oxygen (mg/L)          | 0.75                                                                              |
| Temperature (Degrees Celsius)    | 15.9                                                                              |
| Redox (ORP mV)                   | -68.1                                                                             |
| parameters                       | @12:45, DTW:65.78, pH:6.88, temp:15.9, cond:1.68, turb:6.37, DO:0.75, redox:-68.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 12:45       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 3500        |
| Well Volumes Purged           | 0.48        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:45 |
| Color         | Clear |
| Notable odors | No    |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |                   |
|--------------------------|-------------------|
| Well Location            | Center of Plant 2 |
| Condition of Well        | Good              |
| Well Locked at Arrival   | Yes               |
| Well Locked at Departure | Yes               |

Photo of Well



Signature

34/L

Signed 2019-06-13 16:33:22 UTC

## 2019-12-06, MW-14-61

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-06 13:53:54 UTC by Gary Schafer |
| Updated                                                                                           | 2019-12-06 20:14:12 UTC by Gary Schafer |
| Location                                                                                          | 42.73767597046, -84.5838490315569       |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-12-06                              |
| Well ID                                                                                           | MW-14-61                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Overcast winds 10 to 12 mph temp 35     |

## Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 65.41         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 77.4          |
| Water Column                                                                                                                                                                                                                                                 | 11.99         |
| Gallons in Well                                                                                                                                                                                                                                              | 1.95          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 65.58         |
| Purge Start                                                                                                                                                                                                                                                  | 09:00         |

## @09:05, DTW:65.58, pH:6.79, temp:13, cond:1614, turb:935, DO:0.29, redox:-72.1

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 09:05                                                                          |
| Rate (mL/min)                 | 100                                                                            |
| Depth to Water (ft)           | 65.58                                                                          |
| pH                            | 6.79                                                                           |
| Conductivity (mS/cm)          | 1614                                                                           |
| Turbidity (NTU)               | 935                                                                            |
| Dissolved Oxygen (mg/L)       | 0.29                                                                           |
| Temperature (Degrees Celsius) | 13                                                                             |
| Redox (ORP mV)                | -72.1                                                                          |
| parameters                    | @09:05, DTW:65.58, pH:6.79, temp:13, cond:1614, turb:935, DO:0.29, redox:-72.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

## @09:10, DTW:65.58, pH:6.95, temp:12.7, cond:1673, turb:589, DO:0.41, redox:-81.4

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:10 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 65.58                                                                            |
| pH                            | 6.95                                                                             |
| Conductivity (mS/cm)          | 1673                                                                             |
| Turbidity (NTU)               | 589                                                                              |
| Dissolved Oxygen (mg/L)       | 0.41                                                                             |
| Temperature (Degrees Celsius) | 12.7                                                                             |
| Redox (ORP mV)                | -81.4                                                                            |
| parameters                    | @09:10, DTW:65.58, pH:6.95, temp:12.7, cond:1673, turb:589, DO:0.41, redox:-81.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:15, DTW:65.58, pH:6.96, temp:12.9, cond:1706, turb:1050, DO:0.49, redox:-87.6**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.58                                                                             |
| pH                               | 6.96                                                                              |
| Conductivity (mS/cm)             | 1706                                                                              |
| Turbidity (NTU)                  | 1050                                                                              |
| Dissolved Oxygen (mg/L)          | 0.49                                                                              |
| Temperature (Degrees Celsius)    | 12.9                                                                              |
| Redox (ORP mV)                   | -87.6                                                                             |
| parameters                       | @09:15, DTW:65.58, pH:6.96, temp:12.9, cond:1706, turb:1050, DO:0.49, redox:-87.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:20, DTW:65.58, pH:6.96, temp:13.1, cond:1740, turb:1040, DO:0.22, redox:-80.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.58                                                                             |
| pH                               | 6.96                                                                              |
| Conductivity (mS/cm)             | 1740                                                                              |
| Turbidity (NTU)                  | 1040                                                                              |
| Dissolved Oxygen (mg/L)          | 0.22                                                                              |
| Temperature (Degrees Celsius)    | 13.1                                                                              |
| Redox (ORP mV)                   | -80.4                                                                             |
| parameters                       | @09:20, DTW:65.58, pH:6.96, temp:13.1, cond:1740, turb:1040, DO:0.22, redox:-80.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:25, DTW:65.58, pH:6.97, temp:13.4, cond:1688, turb:1020, DO:0.27, redox:-82.4**

|              |       |
|--------------|-------|
| Reading Time | 09:25 |
|--------------|-------|

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.58                                                                             |
| pH                               | 6.97                                                                              |
| Conductivity (mS/cm)             | 1688                                                                              |
| Turbidity (NTU)                  | 1020                                                                              |
| Dissolved Oxygen (mg/L)          | 0.27                                                                              |
| Temperature (Degrees Celsius)    | 13.4                                                                              |
| Redox (ORP mV)                   | -82.4                                                                             |
| parameters                       | @09:25, DTW:65.58, pH:6.97, temp:13.4, cond:1688, turb:1020, DO:0.27, redox:-82.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:30, DTW:65.58, pH:6.95, temp:13.1, cond:1743, turb:388, DO:0.2, redox:-89.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 65.58                                                                           |
| pH                               | 6.95                                                                            |
| Conductivity (mS/cm)             | 1743                                                                            |
| Turbidity (NTU)                  | 388                                                                             |
| Dissolved Oxygen (mg/L)          | 0.2                                                                             |
| Temperature (Degrees Celsius)    | 13.1                                                                            |
| Redox (ORP mV)                   | -89.1                                                                           |
| parameters                       | @09:30, DTW:65.58, pH:6.95, temp:13.1, cond:1743, turb:388, DO:0.2, redox:-89.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:35, DTW:65.58, pH:6.95, temp:13.3, cond:1750, turb:299, DO:0.15, redox:-90**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 09:35                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 65.58                                                                          |
| pH                               | 6.95                                                                           |
| Conductivity (mS/cm)             | 1750                                                                           |
| Turbidity (NTU)                  | 299                                                                            |
| Dissolved Oxygen (mg/L)          | 0.15                                                                           |
| Temperature (Degrees Celsius)    | 13.3                                                                           |
| Redox (ORP mV)                   | -90                                                                            |
| parameters                       | @09:35, DTW:65.58, pH:6.95, temp:13.3, cond:1750, turb:299, DO:0.15, redox:-90 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:40, DTW:65.58, pH:6.97, temp:13.3, cond:1756, turb:279, DO:0.15, redox:-90.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 65.58                                                                            |
| pH                               | 6.97                                                                             |
| Conductivity (mS/cm)             | 1756                                                                             |
| Turbidity (NTU)                  | 279                                                                              |
| Dissolved Oxygen (mg/L)          | 0.15                                                                             |
| Temperature (Degrees Celsius)    | 13.3                                                                             |
| Redox (ORP mV)                   | -90.5                                                                            |
| parameters                       | @09:40, DTW:65.58, pH:6.97, temp:13.3, cond:1756, turb:279, DO:0.15, redox:-90.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:45, DTW:65.58, pH:6.95, temp:13.3, cond:1761, turb:191, DO:0.15, redox:-91.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 65.58                                                                            |
| pH                               | 6.95                                                                             |
| Conductivity (mS/cm)             | 1761                                                                             |
| Turbidity (NTU)                  | 191                                                                              |
| Dissolved Oxygen (mg/L)          | 0.15                                                                             |
| Temperature (Degrees Celsius)    | 13.3                                                                             |
| Redox (ORP mV)                   | -91.3                                                                            |
| parameters                       | @09:45, DTW:65.58, pH:6.95, temp:13.3, cond:1761, turb:191, DO:0.15, redox:-91.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:50, DTW:65.58, pH:6.95, temp:12.9, cond:1776, turb:96.5, DO:0.15, redox:-93.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:50                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.58                                                                             |
| pH                               | 6.95                                                                              |
| Conductivity (mS/cm)             | 1776                                                                              |
| Turbidity (NTU)                  | 96.5                                                                              |
| Dissolved Oxygen (mg/L)          | 0.15                                                                              |
| Temperature (Degrees Celsius)    | 12.9                                                                              |
| Redox (ORP mV)                   | -93.1                                                                             |
| parameters                       | @09:50, DTW:65.58, pH:6.95, temp:12.9, cond:1776, turb:96.5, DO:0.15, redox:-93.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit



**@09:55, DTW:65.58, pH:6.94, temp:13.4, cond:1778, turb:61.2, DO:0.17, redox:-87.7**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:55                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.58                                                                             |
| pH                               | 6.94                                                                              |
| Conductivity (mS/cm)             | 1778                                                                              |
| Turbidity (NTU)                  | 61.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.17                                                                              |
| Temperature (Degrees Celsius)    | 13.4                                                                              |
| Redox (ORP mV)                   | -87.7                                                                             |
| parameters                       | @09:55, DTW:65.58, pH:6.94, temp:13.4, cond:1778, turb:61.2, DO:0.17, redox:-87.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:00, DTW:65.58, pH:6.94, temp:13.4, cond:1778, turb:47.7, DO:0.14, redox:-91.3**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:00                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.58                                                                             |
| pH                               | 6.94                                                                              |
| Conductivity (mS/cm)             | 1778                                                                              |
| Turbidity (NTU)                  | 47.7                                                                              |
| Dissolved Oxygen (mg/L)          | 0.14                                                                              |
| Temperature (Degrees Celsius)    | 13.4                                                                              |
| Redox (ORP mV)                   | -91.3                                                                             |
| parameters                       | @10:00, DTW:65.58, pH:6.94, temp:13.4, cond:1778, turb:47.7, DO:0.14, redox:-91.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:05, DTW:65.58, pH:6.95, temp:12.8, cond:1768, turb:46, DO:0.25, redox:-81.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:05                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 65.58                                                                           |
| pH                               | 6.95                                                                            |
| Conductivity (mS/cm)             | 1768                                                                            |
| Turbidity (NTU)                  | 46                                                                              |
| Dissolved Oxygen (mg/L)          | 0.25                                                                            |
| Temperature (Degrees Celsius)    | 12.8                                                                            |
| Redox (ORP mV)                   | -81.7                                                                           |
| parameters                       | @10:05, DTW:65.58, pH:6.95, temp:12.8, cond:1768, turb:46, DO:0.25, redox:-81.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 10:06   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 4.5     |
| Well Volumes Purged           | 2.31    |

### Sample Information

|               |                  |
|---------------|------------------|
| Sample Time   | 10:06            |
| Color         | Slight turbidity |
| Notable odors | Strong odor      |

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW-14-61 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature

A handwritten signature in black ink, appearing to read "Gary Schuler". The signature is stylized with large, flowing letters and a prominent "S" for the last name.

Signed 2019-12-06 15:15:48 UTC

## 2019-06-06, MW-14-62, MW-14-62

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-06 13:26:56 EDT by Jessica Fransted |
| Updated                                                                                           | 2019-06-06 15:36:30 EDT by Christine Gregg  |
| Location                                                                                          | 42.7372633, -84.5846537                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-06                                  |
| Well Identification                                                                               | MW-14-62                                    |
| Well ID                                                                                           | MW-14-62                                    |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                         |
| Weather                                                                                           | Partly cloudy 60s                           |

### Evacuation Details

|                                                                                                                                                                                                                                                           |                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing      |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2                  |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 5.73               |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 19.6               |
| Water Column                                                                                                                                                                                                                                              | 13.869999999999999 |
| Gallons in Well                                                                                                                                                                                                                                           | 2.25               |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                    |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow           |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic        |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow           |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 10                 |
| Purge Start                                                                                                                                                                                                                                               | 13:40              |

### @13:45, DTW:6.57, pH:11.14, temp:14.5, cond:0.5, turb:0.02, DO:0.65, redox:-252.8

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 13:45                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 6.57                                                                              |
| pH                            | 11.14                                                                             |
| Conductivity (mS/cm)          | 0.5                                                                               |
| Turbidity (NTU)               | 0.02                                                                              |
| Dissolved Oxygen (mg/L)       | 0.65                                                                              |
| Temperature (Degrees Celsius) | 14.5                                                                              |
| Redox (ORP mV)                | -252.8                                                                            |
| parameters                    | @13:45, DTW:6.57, pH:11.14, temp:14.5, cond:0.5, turb:0.02, DO:0.65, redox:-252.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:50, DTW:6.57, pH:11.15, temp:14.2, cond:0.53, turb:0.02, DO:0.2, redox:-266.3

|              |       |
|--------------|-------|
| Reading Time | 13:50 |
|--------------|-------|

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 6.57                                                                              |
| pH                               | 11.15                                                                             |
| Conductivity (mS/cm)             | 0.53                                                                              |
| Turbidity (NTU)                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)          | 0.2                                                                               |
| Temperature (Degrees Celsius)    | 14.2                                                                              |
| Redox (ORP mV)                   | -266.3                                                                            |
| parameters                       | @13:50, DTW:6.57, pH:11.15, temp:14.2, cond:0.53, turb:0.02, DO:0.2, redox:-266.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:55, DTW:6.57, pH:11.28, temp:14, cond:0.58, turb:0.02, DO:0.13, redox:-277.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 6.57                                                                             |
| pH                               | 11.28                                                                            |
| Conductivity (mS/cm)             | 0.58                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.13                                                                             |
| Temperature (Degrees Celsius)    | 14                                                                               |
| Redox (ORP mV)                   | -277.7                                                                           |
| parameters                       | @13:55, DTW:6.57, pH:11.28, temp:14, cond:0.58, turb:0.02, DO:0.13, redox:-277.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:00, DTW:6.57, pH:11.34, temp:13.8, cond:0.58, turb:0.02, DO:0.12, redox:-283.1**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 14:00                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 6.57                                                                               |
| pH                               | 11.34                                                                              |
| Conductivity (mS/cm)             | 0.58                                                                               |
| Turbidity (NTU)                  | 0.02                                                                               |
| Dissolved Oxygen (mg/L)          | 0.12                                                                               |
| Temperature (Degrees Celsius)    | 13.8                                                                               |
| Redox (ORP mV)                   | -283.1                                                                             |
| parameters                       | @14:00, DTW:6.57, pH:11.34, temp:13.8, cond:0.58, turb:0.02, DO:0.12, redox:-283.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:05, DTW:6.57, pH:11.35, temp:13.9, cond:0.56, turb:0.02, DO:0.1, redox:-286.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:05                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 6.57                                                                              |
| pH                               | 11.35                                                                             |
| Conductivity (mS/cm)             | 0.56                                                                              |
| Turbidity (NTU)                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)          | 0.1                                                                               |
| Temperature (Degrees Celsius)    | 13.9                                                                              |
| Redox (ORP mV)                   | -286.4                                                                            |
| parameters                       | @14:05, DTW:6.57, pH:11.35, temp:13.9, cond:0.56, turb:0.02, DO:0.1, redox:-286.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:10, DTW:6.57, pH:11.36, temp:14, cond:0.56, turb:0.02, DO:0.08, redox:-290.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 6.57                                                                             |
| pH                               | 11.36                                                                            |
| Conductivity (mS/cm)             | 0.56                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.08                                                                             |
| Temperature (Degrees Celsius)    | 14                                                                               |
| Redox (ORP mV)                   | -290.5                                                                           |
| parameters                       | @14:10, DTW:6.57, pH:11.36, temp:14, cond:0.56, turb:0.02, DO:0.08, redox:-290.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:15, DTW:6.57, pH:11.4, temp:13.9, cond:0.55, turb:0.02, DO:0.1, redox:-294.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 6.57                                                                             |
| pH                               | 11.4                                                                             |
| Conductivity (mS/cm)             | 0.55                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.1                                                                              |
| Temperature (Degrees Celsius)    | 13.9                                                                             |
| Redox (ORP mV)                   | -294.3                                                                           |
| parameters                       | @14:15, DTW:6.57, pH:11.4, temp:13.9, cond:0.55, turb:0.02, DO:0.1, redox:-294.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 14:15 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:15 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## SVOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | SVOCs      |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 500 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |
| Signature                |         |



Signed 2019-06-06 17:42:19 UTC

## 2019-12-04, MW-14-62

|                                                                                                   |                                           |
|---------------------------------------------------------------------------------------------------|-------------------------------------------|
| Created                                                                                           | 2019-12-04 18:12:47 UTC by Melissa Weaver |
| Updated                                                                                           | 2019-12-08 22:06:04 UTC by Melissa Weaver |
| Location                                                                                          | 42.7373779938023, -84.5846464858247       |
| Project Number                                                                                    | 30006870                                  |
| Project Name / Location                                                                           | RACER Lansing, MI                         |
| Sampler Name                                                                                      | Melissa Weaver                            |
| Date                                                                                              | 2019-12-04                                |
| Well ID                                                                                           | MW-14-62                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                       |
| Weather                                                                                           | 34 cloudy                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 5.78          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 19.6          |
| Water Column                                                                                                                                                                                                                                                 | 13.82         |
| Gallons in Well                                                                                                                                                                                                                                              | 2.25          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 17            |
| Purge Start                                                                                                                                                                                                                                                  | 13:30         |

### @13:30, DTW:5.91, pH:11.04, temp:12, cond:0.492, turb:4.65, DO:0.2, redox:2.5

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Reading Time                  | 13:30                                                                         |
| Rate (mL/min)                 | 200                                                                           |
| Depth to Water (ft)           | 5.91                                                                          |
| pH                            | 11.04                                                                         |
| Conductivity (mS/cm)          | 0.492                                                                         |
| Turbidity (NTU)               | 4.65                                                                          |
| Dissolved Oxygen (mg/L)       | 0.2                                                                           |
| Temperature (Degrees Celsius) | 12                                                                            |
| Redox (ORP mV)                | 2.5                                                                           |
| parameters                    | @13:30, DTW:5.91, pH:11.04, temp:12, cond:0.492, turb:4.65, DO:0.2, redox:2.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:35, DTW:5.91, pH:11.02, temp:12.1, cond:0.556, turb:1.34, DO:0.1, redox:-53.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:35 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 5.91                                                                              |
| pH                            | 11.02                                                                             |
| Conductivity (mS/cm)          | 0.556                                                                             |
| Turbidity (NTU)               | 1.34                                                                              |
| Dissolved Oxygen (mg/L)       | 0.1                                                                               |
| Temperature (Degrees Celsius) | 12.1                                                                              |
| Redox (ORP mV)                | -53.7                                                                             |
| parameters                    | @13:35, DTW:5.91, pH:11.02, temp:12.1, cond:0.556, turb:1.34, DO:0.1, redox:-53.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:5.92, pH:11.09, temp:12.2, cond:0.564, turb:0.02, DO:0.1, redox:-78.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 5.92                                                                              |
| pH                               | 11.09                                                                             |
| Conductivity (mS/cm)             | 0.564                                                                             |
| Turbidity (NTU)                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)          | 0.1                                                                               |
| Temperature (Degrees Celsius)    | 12.2                                                                              |
| Redox (ORP mV)                   | -78.9                                                                             |
| parameters                       | @13:40, DTW:5.92, pH:11.09, temp:12.2, cond:0.564, turb:0.02, DO:0.1, redox:-78.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:45, DTW:5.92, pH:11.16, temp:12.2, cond:0.575, turb:0.02, DO:0.08, redox:-99.8**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 13:45                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 5.92                                                                               |
| pH                               | 11.16                                                                              |
| Conductivity (mS/cm)             | 0.575                                                                              |
| Turbidity (NTU)                  | 0.02                                                                               |
| Dissolved Oxygen (mg/L)          | 0.08                                                                               |
| Temperature (Degrees Celsius)    | 12.2                                                                               |
| Redox (ORP mV)                   | -99.8                                                                              |
| parameters                       | @13:45, DTW:5.92, pH:11.16, temp:12.2, cond:0.575, turb:0.02, DO:0.08, redox:-99.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:50, DTW:5.92, pH:11.21, temp:12.3, cond:0.565, turb:0.02, DO:0.08, redox:-110.1**

|              |       |
|--------------|-------|
| Reading Time | 13:50 |
|--------------|-------|



|                                  |                                                                                     |
|----------------------------------|-------------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                   |
| Rate (mL/min)                    | 200                                                                                 |
| Depth to Water (ft)              | 5.92                                                                                |
| pH                               | 11.21                                                                               |
| Conductivity (mS/cm)             | 0.565                                                                               |
| Turbidity (NTU)                  | 0.02                                                                                |
| Dissolved Oxygen (mg/L)          | 0.08                                                                                |
| Temperature (Degrees Celsius)    | 12.3                                                                                |
| Redox (ORP mV)                   | -110.1                                                                              |
| parameters                       | @13:50, DTW:5.92, pH:11.21, temp:12.3, cond:0.565, turb:0.02, DO:0.08, redox:-110.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:55, DTW:5.94, pH:11.22, temp:12.4, cond:0.563, turb:0.02, DO:0.07, redox:-117.8**

|                                  |                                                                                     |
|----------------------------------|-------------------------------------------------------------------------------------|
| Reading Time                     | 13:55                                                                               |
| Minutes Elapsed between readings | 5                                                                                   |
| Rate (mL/min)                    | 200                                                                                 |
| Depth to Water (ft)              | 5.94                                                                                |
| pH                               | 11.22                                                                               |
| Conductivity (mS/cm)             | 0.563                                                                               |
| Turbidity (NTU)                  | 0.02                                                                                |
| Dissolved Oxygen (mg/L)          | 0.07                                                                                |
| Temperature (Degrees Celsius)    | 12.4                                                                                |
| Redox (ORP mV)                   | -117.8                                                                              |
| parameters                       | @13:55, DTW:5.94, pH:11.22, temp:12.4, cond:0.563, turb:0.02, DO:0.07, redox:-117.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:00, DTW:5.95, pH:11.23, temp:12.5, cond:0.56, turb:0.02, DO:0.06, redox:-123.9**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 14:00                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 5.95                                                                               |
| pH                               | 11.23                                                                              |
| Conductivity (mS/cm)             | 0.56                                                                               |
| Turbidity (NTU)                  | 0.02                                                                               |
| Dissolved Oxygen (mg/L)          | 0.06                                                                               |
| Temperature (Degrees Celsius)    | 12.5                                                                               |
| Redox (ORP mV)                   | -123.9                                                                             |
| parameters                       | @14:00, DTW:5.95, pH:11.23, temp:12.5, cond:0.56, turb:0.02, DO:0.06, redox:-123.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:05, DTW:5.95, pH:11.25, temp:12.4, cond:0.557, turb:0.02, DO:0.07, redox:-128.6**

|                                  |                                                                                     |
|----------------------------------|-------------------------------------------------------------------------------------|
| Reading Time                     | 14:05                                                                               |
| Minutes Elapsed between readings | 5                                                                                   |
| Rate (mL/min)                    | 200                                                                                 |
| Depth to Water (ft)              | 5.95                                                                                |
| pH                               | 11.25                                                                               |
| Conductivity (mS/cm)             | 0.557                                                                               |
| Turbidity (NTU)                  | 0.02                                                                                |
| Dissolved Oxygen (mg/L)          | 0.07                                                                                |
| Temperature (Degrees Celsius)    | 12.4                                                                                |
| Redox (ORP mV)                   | -128.6                                                                              |
| parameters                       | @14:05, DTW:5.95, pH:11.25, temp:12.4, cond:0.557, turb:0.02, DO:0.07, redox:-128.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:10, DTW:5.95, pH:11.24, temp:12.4, cond:0.559, turb:0.02, DO:0.06, redox:-131.9

|                                  |                                                                                     |
|----------------------------------|-------------------------------------------------------------------------------------|
| Reading Time                     | 14:10                                                                               |
| Minutes Elapsed between readings | 5                                                                                   |
| Rate (mL/min)                    | 200                                                                                 |
| Depth to Water (ft)              | 5.95                                                                                |
| pH                               | 11.24                                                                               |
| Conductivity (mS/cm)             | 0.559                                                                               |
| Turbidity (NTU)                  | 0.02                                                                                |
| Dissolved Oxygen (mg/L)          | 0.06                                                                                |
| Temperature (Degrees Celsius)    | 12.4                                                                                |
| Redox (ORP mV)                   | -131.9                                                                              |
| parameters                       | @14:10, DTW:5.95, pH:11.24, temp:12.4, cond:0.559, turb:0.02, DO:0.06, redox:-131.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 14:10 |
|-----------|-------|

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:10 |
| Color         | Clear |
| Notable odors | None  |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                        |         |
|------------------------|---------|
| Well Location          | Plant 2 |
| Condition of Well      | Good    |
| Well Locked at Arrival | Yes     |

Well Locked at Departure

Yes

Signature

A handwritten signature in black ink, consisting of stylized, cursive letters that appear to be 'ML' followed by a flourish.

Signed 2019-12-04 18:13:59 UTC

## 2019-06-12, MW-14-63, MW-14-63

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 09:54:09 EDT by Gary Schafer    |
| Updated                                                                                           | 2019-06-12 11:01:28 EDT by Christine Gregg |
| Location                                                                                          | 42.74022809, -84.58722711                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Gary Schafer                               |
| Date                                                                                              | 2019-06-12                                 |
| Well Identification                                                                               | MW-14-63                                   |
| Well ID                                                                                           | MW-14-63                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Sunny temp 68                              |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 63.36         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 77.12         |
| Water Column                                                                                                                                                                                                                                              | 13.76         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.24          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 64.32         |
| Purge Start                                                                                                                                                                                                                                               | 09:54         |

### @09:54, DTW:3.87, pH:6.92, temp:15.1, cond:1.21, turb:371, DO:0.79, redox:-52.6

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 09:54                                                                           |
| Rate (mL/min)                 | 150                                                                             |
| Depth to Water (ft)           | 3.87                                                                            |
| pH                            | 6.92                                                                            |
| Conductivity (mS/cm)          | 1.21                                                                            |
| Turbidity (NTU)               | 371                                                                             |
| Dissolved Oxygen (mg/L)       | 0.79                                                                            |
| Temperature (Degrees Celsius) | 15.1                                                                            |
| Redox (ORP mV)                | -52.6                                                                           |
| parameters                    | @09:54, DTW:3.87, pH:6.92, temp:15.1, cond:1.21, turb:371, DO:0.79, redox:-52.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:59, DTW:3.87, pH:6.93, temp:15.7, cond:1.21, turb:438, DO:0.49, redox:-57

|              |       |
|--------------|-------|
| Reading Time | 09:59 |
|--------------|-------|

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 150                                                                           |
| Depth to Water (ft)              | 3.87                                                                          |
| pH                               | 6.93                                                                          |
| Conductivity (mS/cm)             | 1.21                                                                          |
| Turbidity (NTU)                  | 438                                                                           |
| Dissolved Oxygen (mg/L)          | 0.49                                                                          |
| Temperature (Degrees Celsius)    | 15.7                                                                          |
| Redox (ORP mV)                   | -57                                                                           |
| parameters                       | @09:59, DTW:3.87, pH:6.93, temp:15.7, cond:1.21, turb:438, DO:0.49, redox:-57 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:04, DTW:63.36, pH:6.93, temp:16.1, cond:1.22, turb:329, DO:0.35, redox:-63.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:04                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 63.36                                                                            |
| pH                               | 6.93                                                                             |
| Conductivity (mS/cm)             | 1.22                                                                             |
| Turbidity (NTU)                  | 329                                                                              |
| Dissolved Oxygen (mg/L)          | 0.35                                                                             |
| Temperature (Degrees Celsius)    | 16.1                                                                             |
| Redox (ORP mV)                   | -63.5                                                                            |
| parameters                       | @10:04, DTW:63.36, pH:6.93, temp:16.1, cond:1.22, turb:329, DO:0.35, redox:-63.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:09, DTW:63.36, pH:6.93, temp:16.1, cond:1.22, turb:164, DO:0.28, redox:-65.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:09                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 63.36                                                                            |
| pH                               | 6.93                                                                             |
| Conductivity (mS/cm)             | 1.22                                                                             |
| Turbidity (NTU)                  | 164                                                                              |
| Dissolved Oxygen (mg/L)          | 0.28                                                                             |
| Temperature (Degrees Celsius)    | 16.1                                                                             |
| Redox (ORP mV)                   | -65.5                                                                            |
| parameters                       | @10:09, DTW:63.36, pH:6.93, temp:16.1, cond:1.22, turb:164, DO:0.28, redox:-65.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:14, DTW:63.36, pH:6.93, temp:16.2, cond:1.22, turb:119, DO:0.26, redox:-65.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:14                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 63.36                                                                            |
| pH                               | 6.93                                                                             |
| Conductivity (mS/cm)             | 1.22                                                                             |
| Turbidity (NTU)                  | 119                                                                              |
| Dissolved Oxygen (mg/L)          | 0.26                                                                             |
| Temperature (Degrees Celsius)    | 16.2                                                                             |
| Redox (ORP mV)                   | -65.7                                                                            |
| parameters                       | @10:14, DTW:63.36, pH:6.93, temp:16.2, cond:1.22, turb:119, DO:0.26, redox:-65.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:19, DTW:63.36, pH:6.93, temp:16, cond:1.23, turb:99.3, DO:0.27, redox:-65.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:19                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 63.36                                                                           |
| pH                               | 6.93                                                                            |
| Conductivity (mS/cm)             | 1.23                                                                            |
| Turbidity (NTU)                  | 99.3                                                                            |
| Dissolved Oxygen (mg/L)          | 0.27                                                                            |
| Temperature (Degrees Celsius)    | 16                                                                              |
| Redox (ORP mV)                   | -65.7                                                                           |
| parameters                       | @10:19, DTW:63.36, pH:6.93, temp:16, cond:1.23, turb:99.3, DO:0.27, redox:-65.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:24, DTW:63.36, pH:6.92, temp:16.2, cond:1.23, turb:64.5, DO:0.25, redox:-66**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:24                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 63.36                                                                           |
| pH                               | 6.92                                                                            |
| Conductivity (mS/cm)             | 1.23                                                                            |
| Turbidity (NTU)                  | 64.5                                                                            |
| Dissolved Oxygen (mg/L)          | 0.25                                                                            |
| Temperature (Degrees Celsius)    | 16.2                                                                            |
| Redox (ORP mV)                   | -66                                                                             |
| parameters                       | @10:24, DTW:63.36, pH:6.92, temp:16.2, cond:1.23, turb:64.5, DO:0.25, redox:-66 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:29, DTW:63.36, pH:6.92, temp:16.4, cond:1.23, turb:55.2, DO:0.24, redox:-65.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:29                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 63.36                                                                             |
| pH                               | 6.92                                                                              |
| Conductivity (mS/cm)             | 1.23                                                                              |
| Turbidity (NTU)                  | 55.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.24                                                                              |
| Temperature (Degrees Celsius)    | 16.4                                                                              |
| Redox (ORP mV)                   | -65.9                                                                             |
| parameters                       | @10:29, DTW:63.36, pH:6.92, temp:16.4, cond:1.23, turb:55.2, DO:0.24, redox:-65.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:34, DTW:64.48, pH:6.92, temp:16.3, cond:1.23, turb:46.2, DO:0.21, redox:-65.3**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:34                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 64.48                                                                             |
| pH                               | 6.92                                                                              |
| Conductivity (mS/cm)             | 1.23                                                                              |
| Turbidity (NTU)                  | 46.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.21                                                                              |
| Temperature (Degrees Celsius)    | 16.3                                                                              |
| Redox (ORP mV)                   | -65.3                                                                             |
| parameters                       | @10:34, DTW:64.48, pH:6.92, temp:16.3, cond:1.23, turb:46.2, DO:0.21, redox:-65.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:39, DTW:64.48, pH:6.92, temp:16.2, cond:1.23, turb:42.8, DO:0.22, redox:-65.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:39                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 64.48                                                                             |
| pH                               | 6.92                                                                              |
| Conductivity (mS/cm)             | 1.23                                                                              |
| Turbidity (NTU)                  | 42.8                                                                              |
| Dissolved Oxygen (mg/L)          | 0.22                                                                              |
| Temperature (Degrees Celsius)    | 16.2                                                                              |
| Redox (ORP mV)                   | -65.2                                                                             |
| parameters                       | @10:39, DTW:64.48, pH:6.92, temp:16.2, cond:1.23, turb:42.8, DO:0.22, redox:-65.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:44, DTW:64.48, pH:6.92, temp:16.4, cond:1.23, turb:38.2, DO:0.2, redox:-65.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:44                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 64.48                                                                            |
| pH                               | 6.92                                                                             |
| Conductivity (mS/cm)             | 1.23                                                                             |
| Turbidity (NTU)                  | 38.2                                                                             |
| Dissolved Oxygen (mg/L)          | 0.2                                                                              |
| Temperature (Degrees Celsius)    | 16.4                                                                             |
| Redox (ORP mV)                   | -65.3                                                                            |
| parameters                       | @10:44, DTW:64.48, pH:6.92, temp:16.4, cond:1.23, turb:38.2, DO:0.2, redox:-65.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:49, DTW:64.48, pH:6.92, temp:16.2, cond:1.23, turb:37.9, DO:0.2, redox:-65.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:49                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 64.48                                                                            |
| pH                               | 6.92                                                                             |
| Conductivity (mS/cm)             | 1.23                                                                             |
| Turbidity (NTU)                  | 37.9                                                                             |
| Dissolved Oxygen (mg/L)          | 0.2                                                                              |
| Temperature (Degrees Celsius)    | 16.2                                                                             |
| Redox (ORP mV)                   | -65.1                                                                            |
| parameters                       | @10:49, DTW:64.48, pH:6.92, temp:16.2, cond:1.23, turb:37.9, DO:0.2, redox:-65.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:54, DTW:64.48, pH:6.92, temp:16.3, cond:1.23, turb:33.8, DO:0.19, redox:-64.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:54 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 64.48 |
| pH                               | 6.92  |
| Conductivity (mS/cm)             | 1.23  |
| Turbidity (NTU)                  | 33.8  |
| Dissolved Oxygen (mg/L)          | 0.19  |
| Temperature (Degrees Celsius)    | 16.3  |
| Redox (ORP mV)                   | -64.6 |



parameters

@10:54, DTW:64.48, pH:6.92, temp:16.3, cond:1.23, turb:33.8, DO:0.19, redox:-64.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 10:55 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 10:55 |
|-------------|-------|

|       |        |
|-------|--------|
| Color | Cloudy |
|-------|--------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### Well Information

|               |          |
|---------------|----------|
| Well Location | MW-14-63 |
|---------------|----------|

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature



Signed 2019-06-12 15:01:24 UTC

## 2019-06-06, MW-14-64, MW-14-64

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 10:23:52 EDT by Gary Schafer    |
| Updated                                                                                           | 2019-06-06 11:31:14 EDT by Christine Gregg |
| Location                                                                                          | 42.74214248, -84.58919702                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Gary Schafer                               |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-14-64                                   |
| Well ID                                                                                           | MW-14-64                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Overcast                                   |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 66.65         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 66.88         |
| Purge Start                                                                                                                                                                                                                                                  | 10:20         |

### @10:23, DTW:66.28, pH:7.02, temp:16, cond:1.88, turb:340, DO:8.47, redox:-3.4

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Reading Time                  | 10:23                                                                         |
| Rate (mL/min)                 | 150                                                                           |
| Depth to Water (ft)           | 66.28                                                                         |
| pH                            | 7.02                                                                          |
| Conductivity (mS/cm)          | 1.88                                                                          |
| Turbidity (NTU)               | 340                                                                           |
| Dissolved Oxygen (mg/L)       | 8.47                                                                          |
| Temperature (Degrees Celsius) | 16                                                                            |
| Redox (ORP mV)                | -3.4                                                                          |
| parameters                    | @10:23, DTW:66.28, pH:7.02, temp:16, cond:1.88, turb:340, DO:8.47, redox:-3.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:28, DTW:66.28, pH:7.04, temp:16.3, cond:1.86, turb:239, DO:8.06, redox:29.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:28 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 66.28 |

|                               |      |
|-------------------------------|------|
| pH                            | 7.04 |
| Conductivity (mS/cm)          | 1.86 |
| Turbidity (NTU)               | 239  |
| Dissolved Oxygen (mg/L)       | 8.06 |
| Temperature (Degrees Celsius) | 16.3 |
| Redox (ORP mV)                | 29.7 |

parameters @10:28, DTW:66.28, pH:7.04, temp:16.3, cond:1.86, turb:239, DO:8.06, redox:29.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:33, DTW:66.28, pH:7.05, temp:16.7, cond:1.85, turb:167, DO:7.74, redox:-3.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:33 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 66.28 |
| pH                               | 7.05  |
| Conductivity (mS/cm)             | 1.85  |
| Turbidity (NTU)                  | 167   |
| Dissolved Oxygen (mg/L)          | 7.74  |
| Temperature (Degrees Celsius)    | 16.7  |
| Redox (ORP mV)                   | -3.3  |

parameters @10:33, DTW:66.28, pH:7.05, temp:16.7, cond:1.85, turb:167, DO:7.74, redox:-3.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:38, DTW:66.28, pH:7.05, temp:16.7, cond:1.86, turb:176, DO:7.53, redox:-4.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:38 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 66.28 |
| pH                               | 7.05  |
| Conductivity (mS/cm)             | 1.86  |
| Turbidity (NTU)                  | 176   |
| Dissolved Oxygen (mg/L)          | 7.53  |
| Temperature (Degrees Celsius)    | 16.7  |
| Redox (ORP mV)                   | -4.3  |

parameters @10:38, DTW:66.28, pH:7.05, temp:16.7, cond:1.86, turb:176, DO:7.53, redox:-4.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:43, DTW:66.28, pH:7.07, temp:15.4, cond:1.85, turb:150, DO:7.59, redox:-0.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:43 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Depth to Water (ft)           | 66.28                                                                           |
| pH                            | 7.07                                                                            |
| Conductivity (mS/cm)          | 1.85                                                                            |
| Turbidity (NTU)               | 150                                                                             |
| Dissolved Oxygen (mg/L)       | 7.59                                                                            |
| Temperature (Degrees Celsius) | 15.4                                                                            |
| Redox (ORP mV)                | -0.7                                                                            |
| parameters                    | @10:43, DTW:66.28, pH:7.07, temp:15.4, cond:1.85, turb:150, DO:7.59, redox:-0.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:48, DTW:66.28, pH:7.07, temp:15.6, cond:1.86, turb:342, DO:7.34, redox:-2.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:48                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 66.28                                                                           |
| pH                               | 7.07                                                                            |
| Conductivity (mS/cm)             | 1.86                                                                            |
| Turbidity (NTU)                  | 342                                                                             |
| Dissolved Oxygen (mg/L)          | 7.34                                                                            |
| Temperature (Degrees Celsius)    | 15.6                                                                            |
| Redox (ORP mV)                   | -2.3                                                                            |
| parameters                       | @10:48, DTW:66.28, pH:7.07, temp:15.6, cond:1.86, turb:342, DO:7.34, redox:-2.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:53, DTW:66.28, pH:7.07, temp:15.5, cond:1.86, turb:209, DO:7.5, redox:29.7**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 10:53                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 150                                                                            |
| Depth to Water (ft)              | 66.28                                                                          |
| pH                               | 7.07                                                                           |
| Conductivity (mS/cm)             | 1.86                                                                           |
| Turbidity (NTU)                  | 209                                                                            |
| Dissolved Oxygen (mg/L)          | 7.5                                                                            |
| Temperature (Degrees Celsius)    | 15.5                                                                           |
| Redox (ORP mV)                   | 29.7                                                                           |
| parameters                       | @10:53, DTW:66.28, pH:7.07, temp:15.5, cond:1.86, turb:209, DO:7.5, redox:29.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:58, DTW:66.28, pH:7.07, temp:15.6, cond:1.86, turb:141, DO:7.39, redox:-12.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:58 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 150                                                                              |
| Depth to Water (ft)           | 66.28                                                                            |
| pH                            | 7.07                                                                             |
| Conductivity (mS/cm)          | 1.86                                                                             |
| Turbidity (NTU)               | 141                                                                              |
| Dissolved Oxygen (mg/L)       | 7.39                                                                             |
| Temperature (Degrees Celsius) | 15.6                                                                             |
| Redox (ORP mV)                | -12.6                                                                            |
| parameters                    | @10:58, DTW:66.28, pH:7.07, temp:15.6, cond:1.86, turb:141, DO:7.39, redox:-12.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:03, DTW:66.73, pH:7.08, temp:15.7, cond:1.86, turb:118, DO:7.4, redox:-15**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 11:03                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 150                                                                           |
| Depth to Water (ft)              | 66.73                                                                         |
| pH                               | 7.08                                                                          |
| Conductivity (mS/cm)             | 1.86                                                                          |
| Turbidity (NTU)                  | 118                                                                           |
| Dissolved Oxygen (mg/L)          | 7.4                                                                           |
| Temperature (Degrees Celsius)    | 15.7                                                                          |
| Redox (ORP mV)                   | -15                                                                           |
| parameters                       | @11:03, DTW:66.73, pH:7.08, temp:15.7, cond:1.86, turb:118, DO:7.4, redox:-15 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:08, DTW:66.73, pH:7.08, temp:15.7, cond:1.86, turb:89.7, DO:7, redox:-18.9**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:08                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 150                                                                            |
| Depth to Water (ft)              | 66.73                                                                          |
| pH                               | 7.08                                                                           |
| Conductivity (mS/cm)             | 1.86                                                                           |
| Turbidity (NTU)                  | 89.7                                                                           |
| Dissolved Oxygen (mg/L)          | 7                                                                              |
| Temperature (Degrees Celsius)    | 15.7                                                                           |
| Redox (ORP mV)                   | -18.9                                                                          |
| parameters                       | @11:08, DTW:66.73, pH:7.08, temp:15.7, cond:1.86, turb:89.7, DO:7, redox:-18.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:13, DTW:66.73, pH:7.08, temp:15.6, cond:1.86, turb:81.1, DO:6.85, redox:-18.2**

|              |       |
|--------------|-------|
| Reading Time | 11:13 |
|--------------|-------|

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 66.73                                                                             |
| pH                               | 7.08                                                                              |
| Conductivity (mS/cm)             | 1.86                                                                              |
| Turbidity (NTU)                  | 81.1                                                                              |
| Dissolved Oxygen (mg/L)          | 6.85                                                                              |
| Temperature (Degrees Celsius)    | 15.6                                                                              |
| Redox (ORP mV)                   | -18.2                                                                             |
| parameters                       | @11:13, DTW:66.73, pH:7.08, temp:15.6, cond:1.86, turb:81.1, DO:6.85, redox:-18.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:18, DTW:66.73, pH:7.08, temp:15.6, cond:1.86, turb:63.6, DO:7.24, redox:-21.6

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:18                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 66.73                                                                             |
| pH                               | 7.08                                                                              |
| Conductivity (mS/cm)             | 1.86                                                                              |
| Turbidity (NTU)                  | 63.6                                                                              |
| Dissolved Oxygen (mg/L)          | 7.24                                                                              |
| Temperature (Degrees Celsius)    | 15.6                                                                              |
| Redox (ORP mV)                   | -21.6                                                                             |
| parameters                       | @11:18, DTW:66.73, pH:7.08, temp:15.6, cond:1.86, turb:63.6, DO:7.24, redox:-21.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 11:20   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 3       |

### Sample Information

|               |        |
|---------------|--------|
| Sample Time   | 11:20  |
| Color         | Cloudy |
| Notable odors | None   |

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW-14-64 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature

Gary Schafey

Signed 2019-06-06 15:31:10 UTC

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## 2019-08-28, MW-14-64, MW-14-64

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-08-28 11:17:43 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-08-28 11:45:03 EDT by Christine Gregg |
| Location                                                                                          | 42.74213187, -84.58916894                  |
| Project Number                                                                                    | 30006870.1234                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-08-28                                 |
| Well Identification                                                                               | MW-14-64                                   |
| Well ID                                                                                           | MW-14-64                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Partly Cloudy, Breezy, 70's                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 65.55         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 106.3         |
| Water Column                                                                                                                                                                                                                                              | 40.75         |
| Gallons in Well                                                                                                                                                                                                                                           | 6.62          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 104           |
| Purge Start                                                                                                                                                                                                                                               | 11:00         |

### @11:00, DTW:65.55, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 11:00                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 65.55                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @11:00, DTW:65.55, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:05, DTW:65.67, pH:6.9, temp:18.6, cond:1.66, turb:9.37, DO:8.93, redox:166.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 65.67 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.9   |



|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.66                                                                             |
| Turbidity (NTU)               | 9.37                                                                             |
| Dissolved Oxygen (mg/L)       | 8.93                                                                             |
| Temperature (Degrees Celsius) | 18.6                                                                             |
| Redox (ORP mV)                | 166.3                                                                            |
| parameters                    | @11:05, DTW:65.67, pH:6.9, temp:18.6, cond:1.66, turb:9.37, DO:8.93, redox:166.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:10, DTW:65.67, pH:6.91, temp:19.7, cond:1.66, turb:9.12, DO:8.29, redox:166.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.67                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 6.91                                                                              |
| Conductivity (mS/cm)             | 1.66                                                                              |
| Turbidity (NTU)                  | 9.12                                                                              |
| Dissolved Oxygen (mg/L)          | 8.29                                                                              |
| Temperature (Degrees Celsius)    | 19.7                                                                              |
| Redox (ORP mV)                   | 166.5                                                                             |
| parameters                       | @11:10, DTW:65.67, pH:6.91, temp:19.7, cond:1.66, turb:9.12, DO:8.29, redox:166.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:15, DTW:65.67, pH:6.97, temp:20.8, cond:1.66, turb:8.74, DO:8.04, redox:163.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.67                                                                             |
| Milliliters Purged (total)       | 1500                                                                              |
| pH                               | 6.97                                                                              |
| Conductivity (mS/cm)             | 1.66                                                                              |
| Turbidity (NTU)                  | 8.74                                                                              |
| Dissolved Oxygen (mg/L)          | 8.04                                                                              |
| Temperature (Degrees Celsius)    | 20.8                                                                              |
| Redox (ORP mV)                   | 163.5                                                                             |
| parameters                       | @11:15, DTW:65.67, pH:6.97, temp:20.8, cond:1.66, turb:8.74, DO:8.04, redox:163.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:20, DTW:65.67, pH:6.99, temp:21.3, cond:1.66, turb:7.21, DO:8.01, redox:162.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:20 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                               |
| Depth to Water (ft)           | 65.67                                                                             |
| Milliliters Purged (total)    | 2000                                                                              |
| pH                            | 6.99                                                                              |
| Conductivity (mS/cm)          | 1.66                                                                              |
| Turbidity (NTU)               | 7.21                                                                              |
| Dissolved Oxygen (mg/L)       | 8.01                                                                              |
| Temperature (Degrees Celsius) | 21.3                                                                              |
| Redox (ORP mV)                | 162.8                                                                             |
| parameters                    | @11:20, DTW:65.67, pH:6.99, temp:21.3, cond:1.66, turb:7.21, DO:8.01, redox:162.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:25, DTW:65.67, pH:7, temp:21, cond:1.67, turb:6.04, DO:8.2, redox:162.6**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 100                                                                         |
| Depth to Water (ft)              | 65.67                                                                       |
| Milliliters Purged (total)       | 2500                                                                        |
| pH                               | 7                                                                           |
| Conductivity (mS/cm)             | 1.67                                                                        |
| Turbidity (NTU)                  | 6.04                                                                        |
| Dissolved Oxygen (mg/L)          | 8.2                                                                         |
| Temperature (Degrees Celsius)    | 21                                                                          |
| Redox (ORP mV)                   | 162.6                                                                       |
| parameters                       | @11:25, DTW:65.67, pH:7, temp:21, cond:1.67, turb:6.04, DO:8.2, redox:162.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:30, DTW:65.67, pH:7.01, temp:21.3, cond:1.66, turb:4.21, DO:8.06, redox:162.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:30                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.67                                                                             |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 7.01                                                                              |
| Conductivity (mS/cm)             | 1.66                                                                              |
| Turbidity (NTU)                  | 4.21                                                                              |
| Dissolved Oxygen (mg/L)          | 8.06                                                                              |
| Temperature (Degrees Celsius)    | 21.3                                                                              |
| Redox (ORP mV)                   | 162.5                                                                             |
| parameters                       | @11:30, DTW:65.67, pH:7.01, temp:21.3, cond:1.66, turb:4.21, DO:8.06, redox:162.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:35, DTW:65.67, pH:7.01, temp:21.4, cond:1.66, turb:2.45, DO:8.03, redox:162.4

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.67                                                                             |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 7.01                                                                              |
| Conductivity (mS/cm)             | 1.66                                                                              |
| Turbidity (NTU)                  | 2.45                                                                              |
| Dissolved Oxygen (mg/L)          | 8.03                                                                              |
| Temperature (Degrees Celsius)    | 21.4                                                                              |
| Redox (ORP mV)                   | 162.4                                                                             |
| parameters                       | @11:35, DTW:65.67, pH:7.01, temp:21.4, cond:1.66, turb:2.45, DO:8.03, redox:162.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:40, DTW:65.67, pH:7.01, temp:21.4, cond:1.67, turb:2.02, DO:8.09, redox:162.5

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:40                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.67                                                                             |
| Milliliters Purged (total)       | 4000                                                                              |
| pH                               | 7.01                                                                              |
| Conductivity (mS/cm)             | 1.67                                                                              |
| Turbidity (NTU)                  | 2.02                                                                              |
| Dissolved Oxygen (mg/L)          | 8.09                                                                              |
| Temperature (Degrees Celsius)    | 21.4                                                                              |
| Redox (ORP mV)                   | 162.5                                                                             |
| parameters                       | @11:40, DTW:65.67, pH:7.01, temp:21.4, cond:1.67, turb:2.02, DO:8.09, redox:162.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:45, DTW:65.67, pH:7.02, temp:21.5, cond:1.66, turb:1.65, DO:8.05, redox:162.6

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 65.67 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.02  |
| Conductivity (mS/cm)             | 1.66  |
| Turbidity (NTU)                  | 1.65  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 8.05                                                                              |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 21.5                                                                              |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 162.6                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @11:45, DTW:65.67, pH:7.02, temp:21.5, cond:1.66, turb:1.65, DO:8.05, redox:162.6 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                   |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 11:45                                                                             |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                       |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 4500                                                                              |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.18                                                                              |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:45 |
| Color         | Clear |
| Notable odors | No    |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Photo of Well



Signature

3m/h

Signed 2019-08-28 15:19:46 UTC

## 2019-06-11, MW-14-65, MW-14-65

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-11 14:51:08 EDT by Gary Schafer    |
| Updated                                                                                           | 2019-06-11 16:35:03 EDT by Christine Gregg |
| Location                                                                                          | 42.74442248, -84.58414542                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Gary Schafer                               |
| Date                                                                                              | 2019-06-11                                 |
| Well Identification                                                                               | MW-14-65                                   |
| Well ID                                                                                           | MW-14-65                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Sunny temp.73                              |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 7.22          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 13.3          |
| Water Column                                                                                                                                                                                                                                           | 6.08          |
| Gallons in Well                                                                                                                                                                                                                                        | 0.99          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 8.1           |
| Purge Start                                                                                                                                                                                                                                            | 14:51         |

### @14:54, DTW:3.87, pH:7.26, temp:21, cond:0.7, turb:5.55, DO:1.89, redox:212.6

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Reading Time                  | 14:54                                                                         |
| Rate (mL/min)                 | 150                                                                           |
| Depth to Water (ft)           | 3.87                                                                          |
| pH                            | 7.26                                                                          |
| Conductivity (mS/cm)          | 0.7                                                                           |
| Turbidity (NTU)               | 5.55                                                                          |
| Dissolved Oxygen (mg/L)       | 1.89                                                                          |
| Temperature (Degrees Celsius) | 21                                                                            |
| Redox (ORP mV)                | 212.6                                                                         |
| parameters                    | @14:54, DTW:3.87, pH:7.26, temp:21, cond:0.7, turb:5.55, DO:1.89, redox:212.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:59, DTW:3.87, pH:7.3, temp:21.3, cond:0.68, turb:5.34, DO:2.05, redox:208.7

|              |       |
|--------------|-------|
| Reading Time | 14:59 |
|--------------|-------|

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 3.87                                                                            |
| pH                               | 7.3                                                                             |
| Conductivity (mS/cm)             | 0.68                                                                            |
| Turbidity (NTU)                  | 5.34                                                                            |
| Dissolved Oxygen (mg/L)          | 2.05                                                                            |
| Temperature (Degrees Celsius)    | 21.3                                                                            |
| Redox (ORP mV)                   | 208.7                                                                           |
| parameters                       | @14:59, DTW:3.87, pH:7.3, temp:21.3, cond:0.68, turb:5.34, DO:2.05, redox:208.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:04, DTW:3.87, pH:7.26, temp:20.4, cond:0.7, turb:6.61, DO:1.66, redox:208.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:04                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 3.87                                                                            |
| pH                               | 7.26                                                                            |
| Conductivity (mS/cm)             | 0.7                                                                             |
| Turbidity (NTU)                  | 6.61                                                                            |
| Dissolved Oxygen (mg/L)          | 1.66                                                                            |
| Temperature (Degrees Celsius)    | 20.4                                                                            |
| Redox (ORP mV)                   | 208.1                                                                           |
| parameters                       | @15:04, DTW:3.87, pH:7.26, temp:20.4, cond:0.7, turb:6.61, DO:1.66, redox:208.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:09, DTW:3.87, pH:7.22, temp:21, cond:0.72, turb:8.86, DO:1, redox:204.2**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 15:09                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 150                                                                         |
| Depth to Water (ft)              | 3.87                                                                        |
| pH                               | 7.22                                                                        |
| Conductivity (mS/cm)             | 0.72                                                                        |
| Turbidity (NTU)                  | 8.86                                                                        |
| Dissolved Oxygen (mg/L)          | 1                                                                           |
| Temperature (Degrees Celsius)    | 21                                                                          |
| Redox (ORP mV)                   | 204.2                                                                       |
| parameters                       | @15:09, DTW:3.87, pH:7.22, temp:21, cond:0.72, turb:8.86, DO:1, redox:204.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:14, DTW:3.87, pH:7.28, temp:19.3, cond:0.79, turb:9, DO:1.64, redox:205.2**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 15:14                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 150                                                                           |
| Depth to Water (ft)              | 3.87                                                                          |
| pH                               | 7.28                                                                          |
| Conductivity (mS/cm)             | 0.79                                                                          |
| Turbidity (NTU)                  | 9                                                                             |
| Dissolved Oxygen (mg/L)          | 1.64                                                                          |
| Temperature (Degrees Celsius)    | 19.3                                                                          |
| Redox (ORP mV)                   | 205.2                                                                         |
| parameters                       | @15:14, DTW:3.87, pH:7.28, temp:19.3, cond:0.79, turb:9, DO:1.64, redox:205.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:19, DTW:3.87, pH:7.22, temp:20.3, cond:0.77, turb:8.9, DO:2.04, redox:201.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:19                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 3.87                                                                            |
| pH                               | 7.22                                                                            |
| Conductivity (mS/cm)             | 0.77                                                                            |
| Turbidity (NTU)                  | 8.9                                                                             |
| Dissolved Oxygen (mg/L)          | 2.04                                                                            |
| Temperature (Degrees Celsius)    | 20.3                                                                            |
| Redox (ORP mV)                   | 201.3                                                                           |
| parameters                       | @15:19, DTW:3.87, pH:7.22, temp:20.3, cond:0.77, turb:8.9, DO:2.04, redox:201.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:24, DTW:3.87, pH:7.19, temp:18.9, cond:0.79, turb:10.1, DO:0.87, redox:209.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:24                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 3.87                                                                             |
| pH                               | 7.19                                                                             |
| Conductivity (mS/cm)             | 0.79                                                                             |
| Turbidity (NTU)                  | 10.1                                                                             |
| Dissolved Oxygen (mg/L)          | 0.87                                                                             |
| Temperature (Degrees Celsius)    | 18.9                                                                             |
| Redox (ORP mV)                   | 209.8                                                                            |
| parameters                       | @15:24, DTW:3.87, pH:7.19, temp:18.9, cond:0.79, turb:10.1, DO:0.87, redox:209.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit



**@15:29, DTW:3.87, pH:7.19, temp:19, cond:0.78, turb:11.1, DO:0.72, redox:206.6**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:29                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 150                                                                            |
| Depth to Water (ft)              | 3.87                                                                           |
| pH                               | 7.19                                                                           |
| Conductivity (mS/cm)             | 0.78                                                                           |
| Turbidity (NTU)                  | 11.1                                                                           |
| Dissolved Oxygen (mg/L)          | 0.72                                                                           |
| Temperature (Degrees Celsius)    | 19                                                                             |
| Redox (ORP mV)                   | 206.6                                                                          |
| parameters                       | @15:29, DTW:3.87, pH:7.19, temp:19, cond:0.78, turb:11.1, DO:0.72, redox:206.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:34, DTW:3.87, pH:7.22, temp:18.8, cond:0.78, turb:11, DO:0.7, redox:205.6**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 15:34                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 150                                                                           |
| Depth to Water (ft)              | 3.87                                                                          |
| pH                               | 7.22                                                                          |
| Conductivity (mS/cm)             | 0.78                                                                          |
| Turbidity (NTU)                  | 11                                                                            |
| Dissolved Oxygen (mg/L)          | 0.7                                                                           |
| Temperature (Degrees Celsius)    | 18.8                                                                          |
| Redox (ORP mV)                   | 205.6                                                                         |
| parameters                       | @15:34, DTW:3.87, pH:7.22, temp:18.8, cond:0.78, turb:11, DO:0.7, redox:205.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:39, DTW:3.87, pH:, temp:, cond:, turb:, DO:, redox:**

|                                                                                                                                                                                                                                                                                                                                                  |                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 15:39                                                   |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                       |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 150                                                     |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 3.87                                                    |
| parameters                                                                                                                                                                                                                                                                                                                                       | @15:39, DTW:3.87, pH:, temp:, cond:, turb:, DO:, redox: |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                         |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 15:20                                                   |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Gallons                                                 |
| Total Gallons Purged                                                                                                                                                                                                                                                                                                                             | 2                                                       |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 2.02                                                    |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:20 |
| Color         | Clear |
| Notable odors | None  |

### Well Information

|                          |                                                                                                                                                 |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Well Location            | MW-14-65                                                                                                                                        |
| Condition of Well        | Good                                                                                                                                            |
| Well Locked at Arrival   | Yes                                                                                                                                             |
| Well Locked at Departure | Yes                                                                                                                                             |
| Comments                 | Sampled at 1520 there was 4 readings good, but water stopped and push line down a little deeper and hit bottom then was getting high turbidity, |
| Signature                |                                                                                                                                                 |

A handwritten signature in black ink, appearing to read "Gangster", is centered on the page.

Signed 2019-06-11 20:16:48 UTC

## 2019-06-06, MW-14-67, MW-14-67

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 13:45:33 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-06 14:05:43 EDT by Christine Gregg |
| Location                                                                                          | 42.73742057, -84.57776452                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-14-67                                   |
| Well ID                                                                                           | MW-14-67                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | DUP-12                                     |
| Weather                                                                                           | Mostly Cloudy Humid 70's                   |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 4.67          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 20.84         |
| Water Column                                                                                                                                                                                                                                              | 16.17         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.63          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 18            |
| Purge Start                                                                                                                                                                                                                                               | 13:15         |

### @13:15, DTW:4.67, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 13:15                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 4.67                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @13:15, DTW:4.67, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:20, DTW:4.99, pH:7.31, temp:14.5, cond:1.49, turb:19.4, DO:0.36, redox:38.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 4.99  |
| Milliliters Purged (total)       | 500   |

|                               |      |
|-------------------------------|------|
| pH                            | 7.31 |
| Conductivity (mS/cm)          | 1.49 |
| Turbidity (NTU)               | 19.4 |
| Dissolved Oxygen (mg/L)       | 0.36 |
| Temperature (Degrees Celsius) | 14.5 |
| Redox (ORP mV)                | 38.1 |

parameters @13:20, DTW:4.99, pH:7.31, temp:14.5, cond:1.49, turb:19.4, DO:0.36, redox:38.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:25, DTW:4.99, pH:7.31, temp:14.1, cond:1.5, turb:16.2, DO:0.28, redox:34.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 4.99  |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7.31  |
| Conductivity (mS/cm)             | 1.5   |
| Turbidity (NTU)                  | 16.2  |
| Dissolved Oxygen (mg/L)          | 0.28  |
| Temperature (Degrees Celsius)    | 14.1  |
| Redox (ORP mV)                   | 34.6  |

parameters @13:25, DTW:4.99, pH:7.31, temp:14.1, cond:1.5, turb:16.2, DO:0.28, redox:34.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:30, DTW:4.99, pH:7.3, temp:14, cond:1.5, turb:13.2, DO:0.24, redox:34**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 4.99  |
| Milliliters Purged (total)       | 1500  |
| pH                               | 7.3   |
| Conductivity (mS/cm)             | 1.5   |
| Turbidity (NTU)                  | 13.2  |
| Dissolved Oxygen (mg/L)          | 0.24  |
| Temperature (Degrees Celsius)    | 14    |
| Redox (ORP mV)                   | 34    |

parameters @13:30, DTW:4.99, pH:7.3, temp:14, cond:1.5, turb:13.2, DO:0.24, redox:34

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:35, DTW:4.99, pH:7.3, temp:13.8, cond:1.5, turb:11.1, DO:0.22, redox:33.5**

|              |       |
|--------------|-------|
| Reading Time | 13:35 |
|--------------|-------|

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 4.99                                                                          |
| Milliliters Purged (total)       | 2000                                                                          |
| pH                               | 7.3                                                                           |
| Conductivity (mS/cm)             | 1.5                                                                           |
| Turbidity (NTU)                  | 11.1                                                                          |
| Dissolved Oxygen (mg/L)          | 0.22                                                                          |
| Temperature (Degrees Celsius)    | 13.8                                                                          |
| Redox (ORP mV)                   | 33.5                                                                          |
| parameters                       | @13:35, DTW:4.99, pH:7.3, temp:13.8, cond:1.5, turb:11.1, DO:0.22, redox:33.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:4.99, pH:7.31, temp:13.8, cond:1.49, turb:8.75, DO:0.21, redox:32.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 4.99                                                                            |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 7.31                                                                            |
| Conductivity (mS/cm)             | 1.49                                                                            |
| Turbidity (NTU)                  | 8.75                                                                            |
| Dissolved Oxygen (mg/L)          | 0.21                                                                            |
| Temperature (Degrees Celsius)    | 13.8                                                                            |
| Redox (ORP mV)                   | 32.9                                                                            |
| parameters                       | @13:40, DTW:4.99, pH:7.31, temp:13.8, cond:1.49, turb:8.75, DO:0.21, redox:32.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:45, DTW:4.99, pH:7.3, temp:13.7, cond:1.49, turb:5.34, DO:0.2, redox:32.1**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 13:45                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 4.99                                                                          |
| Milliliters Purged (total)       | 3000                                                                          |
| pH                               | 7.3                                                                           |
| Conductivity (mS/cm)             | 1.49                                                                          |
| Turbidity (NTU)                  | 5.34                                                                          |
| Dissolved Oxygen (mg/L)          | 0.2                                                                           |
| Temperature (Degrees Celsius)    | 13.7                                                                          |
| Redox (ORP mV)                   | 32.1                                                                          |
| parameters                       | @13:45, DTW:4.99, pH:7.3, temp:13.7, cond:1.49, turb:5.34, DO:0.2, redox:32.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:50, DTW:4.99, pH:7.29, temp:13.7, cond:1.49, turb:4.05, DO:0.19, redox:31.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:50                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 4.99                                                                            |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 7.29                                                                            |
| Conductivity (mS/cm)             | 1.49                                                                            |
| Turbidity (NTU)                  | 4.05                                                                            |
| Dissolved Oxygen (mg/L)          | 0.19                                                                            |
| Temperature (Degrees Celsius)    | 13.7                                                                            |
| Redox (ORP mV)                   | 31.3                                                                            |
| parameters                       | @13:50, DTW:4.99, pH:7.29, temp:13.7, cond:1.49, turb:4.05, DO:0.19, redox:31.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:55, DTW:4.99, pH:7.3, temp:13.6, cond:1.49, turb:3.78, DO:0.19, redox:30.3**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:55                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 4.99                                                                           |
| Milliliters Purged (total)       | 4000                                                                           |
| pH                               | 7.3                                                                            |
| Conductivity (mS/cm)             | 1.49                                                                           |
| Turbidity (NTU)                  | 3.78                                                                           |
| Dissolved Oxygen (mg/L)          | 0.19                                                                           |
| Temperature (Degrees Celsius)    | 13.6                                                                           |
| Redox (ORP mV)                   | 30.3                                                                           |
| parameters                       | @13:55, DTW:4.99, pH:7.3, temp:13.6, cond:1.49, turb:3.78, DO:0.19, redox:30.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:00, DTW:4.99, pH:7.31, temp:13.6, cond:1.49, turb:3.14, DO:0.19, redox:29.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 4.99  |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.31  |
| Conductivity (mS/cm)             | 1.49  |
| Turbidity (NTU)                  | 3.14  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.19                                                                            |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 13.6                                                                            |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 29.7                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @14:00, DTW:4.99, pH:7.31, temp:13.6, cond:1.49, turb:3.14, DO:0.19, redox:29.7 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                 |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 14:00                                                                           |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                     |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 4500                                                                            |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.45                                                                            |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:00 |
| Color         | Clear |
| Notable odors | No    |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 4              |
| Preservative         | None           |

## Well Information

|                          |                             |
|--------------------------|-----------------------------|
| Well Location            | Center East side of Plant 6 |
| Condition of Well        | Good                        |
| Well Locked at Arrival   | Yes                         |
| Well Locked at Departure | Yes                         |

Photo of Well



Signature

Bud L

Signed 2019-06-06 17:54:45 UTC



## 2019-08-27, MW-14-67

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 16:55:03 UTC by Gary Schafer |
| Updated                                                                                           | 2020-03-31 18:41:15 UTC by Gary Schafer |
| Location                                                                                          | 42.5031209411495, -83.4426999372276     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-08-27                              |
| Well ID                                                                                           | MW-14-67                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Overcast temp 75                        |

### Evacuation Details

|                                                                                                                                                                                                                                                                     |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                    | Top of Casing |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                         | 7.83          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                                | 20.8          |
| Water Column                                                                                                                                                                                                                                                        | 12.97         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1 \text{ foot}$ ] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                        | Low-Flow      |
| Sample Method                                                                                                                                                                                                                                                       | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                            | 8.76          |
| Purge Start                                                                                                                                                                                                                                                         | 12:58         |

### @13:00, DTW:8.42, pH:7.14, temp:17.1, cond:1.51, turb:13.5, DO:0.21, redox:23.2

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 13:00                                                                           |
| Rate (mL/min)                 | 100                                                                             |
| Depth to Water (ft)           | 8.42                                                                            |
| pH                            | 7.14                                                                            |
| Conductivity (mS/cm)          | 1.51                                                                            |
| Turbidity (NTU)               | 13.5                                                                            |
| Dissolved Oxygen (mg/L)       | 0.21                                                                            |
| Temperature (Degrees Celsius) | 17.1                                                                            |
| Redox (ORP mV)                | 23.2                                                                            |
| parameters                    | @13:00, DTW:8.42, pH:7.14, temp:17.1, cond:1.51, turb:13.5, DO:0.21, redox:23.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:05, DTW:8.53, pH:7.07, temp:16.8, cond:1.52, turb:15.5, DO:0.36, redox:28.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 8.53  |
| pH                               | 7.07  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.52                                                                            |
| Turbidity (NTU)               | 15.5                                                                            |
| Dissolved Oxygen (mg/L)       | 0.36                                                                            |
| Temperature (Degrees Celsius) | 16.8                                                                            |
| Redox (ORP mV)                | 28.9                                                                            |
| parameters                    | @13:05, DTW:8.53, pH:7.07, temp:16.8, cond:1.52, turb:15.5, DO:0.36, redox:28.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:10, DTW:8.75, pH:7.08, temp:16.2, cond:1.53, turb:10.3, DO:0.32, redox:31.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:10                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 8.75                                                                            |
| pH                               | 7.08                                                                            |
| Conductivity (mS/cm)             | 1.53                                                                            |
| Turbidity (NTU)                  | 10.3                                                                            |
| Dissolved Oxygen (mg/L)          | 0.32                                                                            |
| Temperature (Degrees Celsius)    | 16.2                                                                            |
| Redox (ORP mV)                   | 31.4                                                                            |
| parameters                       | @13:10, DTW:8.75, pH:7.08, temp:16.2, cond:1.53, turb:10.3, DO:0.32, redox:31.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:15, DTW:8.76, pH:7.1, temp:16.3, cond:1.57, turb:13.4, DO:0.31, redox:32.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:15                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 8.76                                                                           |
| pH                               | 7.1                                                                            |
| Conductivity (mS/cm)             | 1.57                                                                           |
| Turbidity (NTU)                  | 13.4                                                                           |
| Dissolved Oxygen (mg/L)          | 0.31                                                                           |
| Temperature (Degrees Celsius)    | 16.3                                                                           |
| Redox (ORP mV)                   | 32.1                                                                           |
| parameters                       | @13:15, DTW:8.76, pH:7.1, temp:16.3, cond:1.57, turb:13.4, DO:0.31, redox:32.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:20, DTW:8.76, pH:7.12, temp:16.5, cond:1.6, turb:8.81, DO:0.28, redox:32.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 8.76  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| pH                                                                                                                                                                                                                                                                                                                                               | 7.12                                                                           |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1.6                                                                            |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 8.81                                                                           |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.28                                                                           |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 16.5                                                                           |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 32.3                                                                           |
| parameters                                                                                                                                                                                                                                                                                                                                       | @13:20, DTW:8.76, pH:7.12, temp:16.5, cond:1.6, turb:8.81, DO:0.28, redox:32.3 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 13:25                                                                          |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Gallons                                                                        |
| Total Gallons Purged                                                                                                                                                                                                                                                                                                                             | 2                                                                              |

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 13:21 |
|-------------|-------|

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW 14-67 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature



Signed 2020-03-31 18:41:13 UTC

## 2019-12-03, MW-14-67

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-03 20:37:14 UTC by Gary Schafer |
| Updated                                                                                           | 2019-12-06 16:53:18 UTC by Gary Schafer |
| Location                                                                                          | 42.7373741381268, -84.5776190982057     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-12-03                              |
| Well ID                                                                                           | MW-14-67                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Overcast / slight breeze temp 31        |

## Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 4.21          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 20.8          |
| Water Column                                                                                                                                                                                                                                                 | 16.59         |
| Gallons in Well                                                                                                                                                                                                                                              | 2.7           |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 4.41          |
| Purge Start                                                                                                                                                                                                                                                  | 15:38         |

## @15:42, DTW:4.3, pH:7.45, temp:8.3, cond:1494, turb:4.29, DO:2.2, redox:88.5

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Reading Time                  | 15:42                                                                        |
| Depth to Water (ft)           | 4.3                                                                          |
| pH                            | 7.45                                                                         |
| Conductivity (mS/cm)          | 1494                                                                         |
| Turbidity (NTU)               | 4.29                                                                         |
| Dissolved Oxygen (mg/L)       | 2.2                                                                          |
| Temperature (Degrees Celsius) | 8.3                                                                          |
| Redox (ORP mV)                | 88.5                                                                         |
| parameters                    | @15:42, DTW:4.3, pH:7.45, temp:8.3, cond:1494, turb:4.29, DO:2.2, redox:88.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

## @15:47, DTW:4.35, pH:7.39, temp:8.5, cond:1518, turb:6.48, DO:1.35, redox:92.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:47 |
| Minutes Elapsed between readings | 5     |
| Depth to Water (ft)              | 4.35  |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| pH                            | 7.39                                                                           |
| Conductivity (mS/cm)          | 1518                                                                           |
| Turbidity (NTU)               | 6.48                                                                           |
| Dissolved Oxygen (mg/L)       | 1.35                                                                           |
| Temperature (Degrees Celsius) | 8.5                                                                            |
| Redox (ORP mV)                | 92.5                                                                           |
| parameters                    | @15:47, DTW:4.35, pH:7.39, temp:8.5, cond:1518, turb:6.48, DO:1.35, redox:92.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:52, DTW:4.36, pH:7.35, temp:8.5, cond:1548, turb:10.2, DO:1.76, redox:96.2**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:52                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Depth to Water (ft)              | 4.36                                                                           |
| pH                               | 7.35                                                                           |
| Conductivity (mS/cm)             | 1548                                                                           |
| Turbidity (NTU)                  | 10.2                                                                           |
| Dissolved Oxygen (mg/L)          | 1.76                                                                           |
| Temperature (Degrees Celsius)    | 8.5                                                                            |
| Redox (ORP mV)                   | 96.2                                                                           |
| parameters                       | @15:52, DTW:4.36, pH:7.35, temp:8.5, cond:1548, turb:10.2, DO:1.76, redox:96.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:57, DTW:4.36, pH:7.37, temp:8.1, cond:1567, turb:11.8, DO:1.54, redox:96.5**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:57                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Depth to Water (ft)              | 4.36                                                                           |
| pH                               | 7.37                                                                           |
| Conductivity (mS/cm)             | 1567                                                                           |
| Turbidity (NTU)                  | 11.8                                                                           |
| Dissolved Oxygen (mg/L)          | 1.54                                                                           |
| Temperature (Degrees Celsius)    | 8.1                                                                            |
| Redox (ORP mV)                   | 96.5                                                                           |
| parameters                       | @15:57, DTW:4.36, pH:7.37, temp:8.1, cond:1567, turb:11.8, DO:1.54, redox:96.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:02, DTW:4.36, pH:7.36, temp:8.1, cond:1592, turb:12, DO:1.44, redox:101.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 16:02 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 4.36  |
| pH                               | 7.36  |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1592                                                                          |
| Turbidity (NTU)               | 12                                                                            |
| Dissolved Oxygen (mg/L)       | 1.44                                                                          |
| Temperature (Degrees Celsius) | 8.1                                                                           |
| Redox (ORP mV)                | 101.6                                                                         |
| parameters                    | @16:02, DTW:4.36, pH:7.36, temp:8.1, cond:1592, turb:12, DO:1.44, redox:101.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:07, DTW:4.36, pH:7.35, temp:8, cond:1596, turb:14, DO:1.4, redox:102.9**

|                                  |                                                                            |
|----------------------------------|----------------------------------------------------------------------------|
| Reading Time                     | 16:07                                                                      |
| Minutes Elapsed between readings | 5                                                                          |
| Rate (mL/min)                    | 100                                                                        |
| Depth to Water (ft)              | 4.36                                                                       |
| pH                               | 7.35                                                                       |
| Conductivity (mS/cm)             | 1596                                                                       |
| Turbidity (NTU)                  | 14                                                                         |
| Dissolved Oxygen (mg/L)          | 1.4                                                                        |
| Temperature (Degrees Celsius)    | 8                                                                          |
| Redox (ORP mV)                   | 102.9                                                                      |
| parameters                       | @16:07, DTW:4.36, pH:7.35, temp:8, cond:1596, turb:14, DO:1.4, redox:102.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:12, DTW:4.36, pH:7.35, temp:8.1, cond:1589, turb:13.8, DO:1.36, redox:102.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 16:12                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 4.36                                                                            |
| pH                               | 7.35                                                                            |
| Conductivity (mS/cm)             | 1589                                                                            |
| Turbidity (NTU)                  | 13.8                                                                            |
| Dissolved Oxygen (mg/L)          | 1.36                                                                            |
| Temperature (Degrees Celsius)    | 8.1                                                                             |
| Redox (ORP mV)                   | 102.8                                                                           |
| parameters                       | @16:12, DTW:4.36, pH:7.35, temp:8.1, cond:1589, turb:13.8, DO:1.36, redox:102.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:17, DTW:4.36, pH:7.36, temp:8, cond:1550, turb:11.9, DO:1.32, redox:103.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 16:17 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 4.36  |

|                               |       |
|-------------------------------|-------|
| pH                            | 7.36  |
| Conductivity (mS/cm)          | 1550  |
| Turbidity (NTU)               | 11.9  |
| Dissolved Oxygen (mg/L)       | 1.32  |
| Temperature (Degrees Celsius) | 8     |
| Redox (ORP mV)                | 103.1 |

parameters @16:17, DTW:4.36, pH:7.36, temp:8, cond:1550, turb:11.9, DO:1.32, redox:103.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:22, DTW:4.4, pH:7.35, temp:8.5, cond:1560, turb:9.79, DO:1.34, redox:102.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 16:22 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 4.4   |
| pH                               | 7.35  |
| Conductivity (mS/cm)             | 1560  |
| Turbidity (NTU)                  | 9.79  |
| Dissolved Oxygen (mg/L)          | 1.34  |
| Temperature (Degrees Celsius)    | 8.5   |
| Redox (ORP mV)                   | 102.5 |

parameters @16:22, DTW:4.4, pH:7.35, temp:8.5, cond:1560, turb:9.79, DO:1.34, redox:102.5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:27, DTW:4.41, pH:7.35, temp:8.5, cond:1558, turb:8.46, DO:1.33, redox:101.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 16:27 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 4.41  |
| pH                               | 7.35  |
| Conductivity (mS/cm)             | 1558  |
| Turbidity (NTU)                  | 8.46  |
| Dissolved Oxygen (mg/L)          | 1.33  |
| Temperature (Degrees Celsius)    | 8.5   |
| Redox (ORP mV)                   | 101.3 |

parameters @16:27, DTW:4.41, pH:7.35, temp:8.5, cond:1558, turb:8.46, DO:1.33, redox:101.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 16:28   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 1       |
| Well Volumes Purged           | 0.37    |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 16:28 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 4              |
| Preservative         | None           |

## Well Information

|                          |                  |
|--------------------------|------------------|
| Well Location            | MW-14-67         |
| Condition of Well        | Good             |
| Well Locked at Arrival   | Yes              |
| Well Locked at Departure | Yes              |
| Comments                 | Dup-07 well also |
| Signature                |                  |

A handwritten signature in black ink, appearing to read "Gary Schuler". The signature is written in a cursive, stylized font with a large, looping "G" and "S".

Signed 2019-12-03 21:38:38 UTC



## 2019-06-06, MW-14-70, MW-14-70

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 14:28:43 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-06 15:17:43 EDT by Christine Gregg |
| Location                                                                                          | 42.73832527, -84.57759228                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-14-70                                   |
| Well ID                                                                                           | MW-14-70                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | MSMSD                                      |
| Weather                                                                                           | Mostly Cloudy Humid 70's                   |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 9.78          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 23.1          |
| Water Column                                                                                                                                                                                                                                           | 13.32         |
| Gallons in Well                                                                                                                                                                                                                                        | 2.16          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 21.5          |
| Purge Start                                                                                                                                                                                                                                            | 14:30         |

### @14:30, DTW:9.78, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 14:30                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 9.78                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @14:30, DTW:9.78, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:35, DTW:10.11, pH:7.25, temp:20.3, cond:1.46, turb:13.8, DO:1.09, redox:39.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 10.11 |
| Milliliters Purged (total)       | 500   |

|                               |      |
|-------------------------------|------|
| pH                            | 7.25 |
| Conductivity (mS/cm)          | 1.46 |
| Turbidity (NTU)               | 13.8 |
| Dissolved Oxygen (mg/L)       | 1.09 |
| Temperature (Degrees Celsius) | 20.3 |
| Redox (ORP mV)                | 39.9 |

parameters @14:35, DTW:10.11, pH:7.25, temp:20.3, cond:1.46, turb:13.8, DO:1.09, redox:39.9

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:40, DTW:10.22, pH:7.22, temp:19.7, cond:1.46, turb:11.2, DO:0.78, redox:37.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 10.22 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7.22  |
| Conductivity (mS/cm)             | 1.46  |
| Turbidity (NTU)                  | 11.2  |
| Dissolved Oxygen (mg/L)          | 0.78  |
| Temperature (Degrees Celsius)    | 19.7  |
| Redox (ORP mV)                   | 37.3  |

parameters @14:40, DTW:10.22, pH:7.22, temp:19.7, cond:1.46, turb:11.2, DO:0.78, redox:37.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:45, DTW:10.22, pH:7.21, temp:19.5, cond:1.46, turb:9.23, DO:0.62, redox:35.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 10.22 |
| Milliliters Purged (total)       | 1500  |
| pH                               | 7.21  |
| Conductivity (mS/cm)             | 1.46  |
| Turbidity (NTU)                  | 9.23  |
| Dissolved Oxygen (mg/L)          | 0.62  |
| Temperature (Degrees Celsius)    | 19.5  |
| Redox (ORP mV)                   | 35.7  |

parameters @14:45, DTW:10.22, pH:7.21, temp:19.5, cond:1.46, turb:9.23, DO:0.62, redox:35.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:50, DTW:10.22, pH:7.21, temp:19.3, cond:1.46, turb:7.12, DO:0.58, redox:34.9**

|              |       |
|--------------|-------|
| Reading Time | 14:50 |
|--------------|-------|

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 10.22                                                                            |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 7.21                                                                             |
| Conductivity (mS/cm)             | 1.46                                                                             |
| Turbidity (NTU)                  | 7.12                                                                             |
| Dissolved Oxygen (mg/L)          | 0.58                                                                             |
| Temperature (Degrees Celsius)    | 19.3                                                                             |
| Redox (ORP mV)                   | 34.9                                                                             |
| parameters                       | @14:50, DTW:10.22, pH:7.21, temp:19.3, cond:1.46, turb:7.12, DO:0.58, redox:34.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:55, DTW:10.22, pH:7.21, temp:19, cond:1.46, turb:5.43, DO:0.54, redox:34.5**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:55                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 10.22                                                                          |
| Milliliters Purged (total)       | 2500                                                                           |
| pH                               | 7.21                                                                           |
| Conductivity (mS/cm)             | 1.46                                                                           |
| Turbidity (NTU)                  | 5.43                                                                           |
| Dissolved Oxygen (mg/L)          | 0.54                                                                           |
| Temperature (Degrees Celsius)    | 19                                                                             |
| Redox (ORP mV)                   | 34.5                                                                           |
| parameters                       | @14:55, DTW:10.22, pH:7.21, temp:19, cond:1.46, turb:5.43, DO:0.54, redox:34.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:00, DTW:10.22, pH:7.21, temp:19.2, cond:1.46, turb:4.92, DO:0.53, redox:34.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 10.22                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.21                                                                             |
| Conductivity (mS/cm)             | 1.46                                                                             |
| Turbidity (NTU)                  | 4.92                                                                             |
| Dissolved Oxygen (mg/L)          | 0.53                                                                             |
| Temperature (Degrees Celsius)    | 19.2                                                                             |
| Redox (ORP mV)                   | 34.4                                                                             |
| parameters                       | @15:00, DTW:10.22, pH:7.21, temp:19.2, cond:1.46, turb:4.92, DO:0.53, redox:34.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:05, DTW:10.22, pH:7.21, temp:19.4, cond:1.45, turb:4.5, DO:0.52, redox:33.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:05                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 10.22                                                                           |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 7.21                                                                            |
| Conductivity (mS/cm)             | 1.45                                                                            |
| Turbidity (NTU)                  | 4.5                                                                             |
| Dissolved Oxygen (mg/L)          | 0.52                                                                            |
| Temperature (Degrees Celsius)    | 19.4                                                                            |
| Redox (ORP mV)                   | 33.8                                                                            |
| parameters                       | @15:05, DTW:10.22, pH:7.21, temp:19.4, cond:1.45, turb:4.5, DO:0.52, redox:33.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 15:05       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 3500        |
| Well Volumes Purged           | 0.43        |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:05 |
| Color         | Clear |
| Notable odors | No    |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 6              |
| Preservative         | None           |

### Well Information

|                          |                             |
|--------------------------|-----------------------------|
| Well Location            | East Center side of Plant 6 |
| Condition of Well        | Good                        |
| Well Locked at Arrival   | Yes                         |
| Well Locked at Departure | Yes                         |

Photo of Well



---

Signature

Beck

Signed 2019-06-06 18:37:56 UTC

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## 2019-08-27, MW-14-70

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 16:15:29 UTC by Gary Schafer |
| Updated                                                                                           | 2020-03-31 18:40:23 UTC by Gary Schafer |
| Location                                                                                          | 42.503155181224, -83.4426987637611      |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-08-27                              |
| Well ID                                                                                           | MW-14-70                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 13.5          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 23.1          |
| Water Column                                                                                                                                                                                                                                              | 9.6           |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                               | 11:15         |

### @11:35, DTW:14.17, pH:7.1, temp:16, cond:1.37, turb:111, DO:0.41, redox:110

|                               |                                                                             |
|-------------------------------|-----------------------------------------------------------------------------|
| Reading Time                  | 11:35                                                                       |
| Rate (mL/min)                 | 100                                                                         |
| Depth to Water (ft)           | 14.17                                                                       |
| pH                            | 7.1                                                                         |
| Conductivity (mS/cm)          | 1.37                                                                        |
| Turbidity (NTU)               | 111                                                                         |
| Dissolved Oxygen (mg/L)       | 0.41                                                                        |
| Temperature (Degrees Celsius) | 16                                                                          |
| Redox (ORP mV)                | 110                                                                         |
| parameters                    | @11:35, DTW:14.17, pH:7.1, temp:16, cond:1.37, turb:111, DO:0.41, redox:110 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:40, DTW:14.27, pH:6.99, temp:16.1, cond:1.47, turb:56.4, DO:0.4, redox:116.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 14.27 |
| pH                               | 6.99  |
| Conductivity (mS/cm)             | 1.47  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Turbidity (NTU)               | 56.4                                                                             |
| Dissolved Oxygen (mg/L)       | 0.4                                                                              |
| Temperature (Degrees Celsius) | 16.1                                                                             |
| Redox (ORP mV)                | 116.3                                                                            |
| parameters                    | @11:40, DTW:14.27, pH:6.99, temp:16.1, cond:1.47, turb:56.4, DO:0.4, redox:116.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:45, DTW:14.48, pH:7.02, temp:15.8, cond:1.44, turb:42.8, DO:0.41, redox:113.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:45                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 14.48                                                                             |
| pH                               | 7.02                                                                              |
| Conductivity (mS/cm)             | 1.44                                                                              |
| Turbidity (NTU)                  | 42.8                                                                              |
| Dissolved Oxygen (mg/L)          | 0.41                                                                              |
| Temperature (Degrees Celsius)    | 15.8                                                                              |
| Redox (ORP mV)                   | 113.9                                                                             |
| parameters                       | @11:45, DTW:14.48, pH:7.02, temp:15.8, cond:1.44, turb:42.8, DO:0.41, redox:113.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:50, DTW:14.67, pH:7.03, temp:15.6, cond:1.44, turb:38.6, DO:0.4, redox:113**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:50                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 14.67                                                                          |
| pH                               | 7.03                                                                           |
| Conductivity (mS/cm)             | 1.44                                                                           |
| Turbidity (NTU)                  | 38.6                                                                           |
| Dissolved Oxygen (mg/L)          | 0.4                                                                            |
| Temperature (Degrees Celsius)    | 15.6                                                                           |
| Redox (ORP mV)                   | 113                                                                            |
| parameters                       | @11:50, DTW:14.67, pH:7.03, temp:15.6, cond:1.44, turb:38.6, DO:0.4, redox:113 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:55, DTW:14.7, pH:7.05, temp:15.8, cond:1.5, turb:26.1, DO:0.38, redox:112.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 14.7  |
| pH                               | 7.05  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1.5                                                                             |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 26.1                                                                            |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.38                                                                            |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 15.8                                                                            |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 112.2                                                                           |
| parameters                                                                                                                                                                                                                                                                                                                                       | @11:55, DTW:14.7, pH:7.05, temp:15.8, cond:1.5, turb:26.1, DO:0.38, redox:112.2 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                 |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 12:00                                                                           |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Gallons                                                                         |
| Total Gallons Purged                                                                                                                                                                                                                                                                                                                             | 2                                                                               |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:56 |
| Color         | Clear |
| Notable odors | None  |

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW 14-70 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |
| Signature                |          |



Signed 2020-03-31 18:39:58 UTC



## 2019-12-03, MW-14-70

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-03 18:12:05 UTC by Gary Schafer |
| Updated                                                                                           | 2019-12-05 16:18:50 UTC by Gary Schafer |
| Location                                                                                          | 42.7383691957618, -84.5774850715739     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-12-03                              |
| Well ID                                                                                           | MW-14-70                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Overcast/ slight breeze temp 31         |

## Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 9.54          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 23.1          |
| Water Column                                                                                                                                                                                                                                           | 13.56         |
| Gallons in Well                                                                                                                                                                                                                                        | 2.2           |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 11.09         |
| Purge Start                                                                                                                                                                                                                                            | 13:14         |

## @13:15, DTW:9.65, pH:7.41, temp:8.8, cond:1419, turb:22.6, DO:1.67, redox:97

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Reading Time                  | 13:15                                                                        |
| Rate (mL/min)                 | 100                                                                          |
| Depth to Water (ft)           | 9.65                                                                         |
| pH                            | 7.41                                                                         |
| Conductivity (mS/cm)          | 1419                                                                         |
| Turbidity (NTU)               | 22.6                                                                         |
| Dissolved Oxygen (mg/L)       | 1.67                                                                         |
| Temperature (Degrees Celsius) | 8.8                                                                          |
| Redox (ORP mV)                | 97                                                                           |
| parameters                    | @13:15, DTW:9.65, pH:7.41, temp:8.8, cond:1419, turb:22.6, DO:1.67, redox:97 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

## @13:20, DTW:9.65, pH:7.44, temp:7.6, cond:1433, turb:19, DO:1.89, redox:96.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:20 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                          |
| Depth to Water (ft)           | 9.65                                                                         |
| pH                            | 7.44                                                                         |
| Conductivity (mS/cm)          | 1433                                                                         |
| Turbidity (NTU)               | 19                                                                           |
| Dissolved Oxygen (mg/L)       | 1.89                                                                         |
| Temperature (Degrees Celsius) | 7.6                                                                          |
| Redox (ORP mV)                | 96.7                                                                         |
| parameters                    | @13:20, DTW:9.65, pH:7.44, temp:7.6, cond:1433, turb:19, DO:1.89, redox:96.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:25, DTW:9.76, pH:7.42, temp:9.6, cond:1391, turb:18.1, DO:1.59, redox:100.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 9.76                                                                            |
| pH                               | 7.42                                                                            |
| Conductivity (mS/cm)             | 1391                                                                            |
| Turbidity (NTU)                  | 18.1                                                                            |
| Dissolved Oxygen (mg/L)          | 1.59                                                                            |
| Temperature (Degrees Celsius)    | 9.6                                                                             |
| Redox (ORP mV)                   | 100.2                                                                           |
| parameters                       | @13:25, DTW:9.76, pH:7.42, temp:9.6, cond:1391, turb:18.1, DO:1.59, redox:100.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:30, DTW:9.85, pH:7.42, temp:9.9, cond:1402, turb:14.9, DO:1.55, redox:101.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 9.85                                                                            |
| pH                               | 7.42                                                                            |
| Conductivity (mS/cm)             | 1402                                                                            |
| Turbidity (NTU)                  | 14.9                                                                            |
| Dissolved Oxygen (mg/L)          | 1.55                                                                            |
| Temperature (Degrees Celsius)    | 9.9                                                                             |
| Redox (ORP mV)                   | 101.4                                                                           |
| parameters                       | @13:30, DTW:9.85, pH:7.42, temp:9.9, cond:1402, turb:14.9, DO:1.55, redox:101.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:35, DTW:9.9, pH:7.42, temp:9.2, cond:1420, turb:14.2, DO:1.45, redox:102.7**

|              |       |
|--------------|-------|
| Reading Time | 13:35 |
|--------------|-------|

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 9.9                                                                            |
| pH                               | 7.42                                                                           |
| Conductivity (mS/cm)             | 1420                                                                           |
| Turbidity (NTU)                  | 14.2                                                                           |
| Dissolved Oxygen (mg/L)          | 1.45                                                                           |
| Temperature (Degrees Celsius)    | 9.2                                                                            |
| Redox (ORP mV)                   | 102.7                                                                          |
| parameters                       | @13:35, DTW:9.9, pH:7.42, temp:9.2, cond:1420, turb:14.2, DO:1.45, redox:102.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:9.95, pH:7.41, temp:9.2, cond:1416, turb:13.3, DO:1.38, redox:105**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 9.95                                                                          |
| pH                               | 7.41                                                                          |
| Conductivity (mS/cm)             | 1416                                                                          |
| Turbidity (NTU)                  | 13.3                                                                          |
| Dissolved Oxygen (mg/L)          | 1.38                                                                          |
| Temperature (Degrees Celsius)    | 9.2                                                                           |
| Redox (ORP mV)                   | 105                                                                           |
| parameters                       | @13:40, DTW:9.95, pH:7.41, temp:9.2, cond:1416, turb:13.3, DO:1.38, redox:105 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:45, DTW:10, pH:7.41, temp:9.4, cond:1419, turb:12, DO:1.32, redox:106.6**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 13:45                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 100                                                                         |
| Depth to Water (ft)              | 10                                                                          |
| pH                               | 7.41                                                                        |
| Conductivity (mS/cm)             | 1419                                                                        |
| Turbidity (NTU)                  | 12                                                                          |
| Dissolved Oxygen (mg/L)          | 1.32                                                                        |
| Temperature (Degrees Celsius)    | 9.4                                                                         |
| Redox (ORP mV)                   | 106.6                                                                       |
| parameters                       | @13:45, DTW:10, pH:7.41, temp:9.4, cond:1419, turb:12, DO:1.32, redox:106.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:50, DTW:10.05, pH:7.42, temp:9.1, cond:1420, turb:13, DO:1.45, redox:107.4**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:50                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 10.05                                                                          |
| pH                               | 7.42                                                                           |
| Conductivity (mS/cm)             | 1420                                                                           |
| Turbidity (NTU)                  | 13                                                                             |
| Dissolved Oxygen (mg/L)          | 1.45                                                                           |
| Temperature (Degrees Celsius)    | 9.1                                                                            |
| Redox (ORP mV)                   | 107.4                                                                          |
| parameters                       | @13:50, DTW:10.05, pH:7.42, temp:9.1, cond:1420, turb:13, DO:1.45, redox:107.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:55, DTW:10.09, pH:7.41, temp:9.2, cond:1421, turb:11.9, DO:1.34, redox:109**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:55                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 10.09                                                                          |
| pH                               | 7.41                                                                           |
| Conductivity (mS/cm)             | 1421                                                                           |
| Turbidity (NTU)                  | 11.9                                                                           |
| Dissolved Oxygen (mg/L)          | 1.34                                                                           |
| Temperature (Degrees Celsius)    | 9.2                                                                            |
| Redox (ORP mV)                   | 109                                                                            |
| parameters                       | @13:55, DTW:10.09, pH:7.41, temp:9.2, cond:1421, turb:11.9, DO:1.34, redox:109 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:00, DTW:11.01, pH:7.4, temp:9.3, cond:1423, turb:11.3, DO:1.35, redox:111.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 11.01                                                                           |
| pH                               | 7.4                                                                             |
| Conductivity (mS/cm)             | 1423                                                                            |
| Turbidity (NTU)                  | 11.3                                                                            |
| Dissolved Oxygen (mg/L)          | 1.35                                                                            |
| Temperature (Degrees Celsius)    | 9.3                                                                             |
| Redox (ORP mV)                   | 111.3                                                                           |
| parameters                       | @14:00, DTW:11.01, pH:7.4, temp:9.3, cond:1423, turb:11.3, DO:1.35, redox:111.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 14:02   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 1       |
| Well Volumes Purged           | 0.45    |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:02 |
| Color         | Clear |
| Notable odors | None  |

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW-14-70 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature



Signed 2019-12-03 19:03:44 UTC

## 2019-06-06, MW-15-71, MW-15-71

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 10:36:31 EDT by Donald Richmond |
| Updated                                                                                           | 2019-06-06 10:55:06 EDT by Christine Gregg |
| Location                                                                                          | 42.74317869, -84.58961955                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-15-71                                   |
| Well ID                                                                                           | MW-15-71                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |

### Evacuation Details

|                                                                                                                                                                                                                                                                     |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                    | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                            | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                         | 64.67         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1 \text{ foot}$ ] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                        | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                              | Bladder       |
| Sample Method                                                                                                                                                                                                                                                       | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                         | 10:25         |

### @10:35, DTW:65.8, pH:7.15, temp:15.9, cond:1.38, turb:3.63, DO:5.74, redox:140.3

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 10:35                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 65.8                                                                             |
| pH                            | 7.15                                                                             |
| Conductivity (mS/cm)          | 1.38                                                                             |
| Turbidity (NTU)               | 3.63                                                                             |
| Dissolved Oxygen (mg/L)       | 5.74                                                                             |
| Temperature (Degrees Celsius) | 15.9                                                                             |
| Redox (ORP mV)                | 140.3                                                                            |
| parameters                    | @10:35, DTW:65.8, pH:7.15, temp:15.9, cond:1.38, turb:3.63, DO:5.74, redox:140.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:40, DTW:65.8, pH:7.1, temp:15.9, cond:1.39, turb:4.22, DO:5.38, redox:140.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 7.1   |
| Conductivity (mS/cm)             | 1.39  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Turbidity (NTU)               | 4.22                                                                            |
| Dissolved Oxygen (mg/L)       | 5.38                                                                            |
| Temperature (Degrees Celsius) | 15.9                                                                            |
| Redox (ORP mV)                | 140.5                                                                           |
| parameters                    | @10:40, DTW:65.8, pH:7.1, temp:15.9, cond:1.39, turb:4.22, DO:5.38, redox:140.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:45, DTW:65.8, pH:7.05, temp:15.9, cond:1.39, turb:2.57, DO:5.31, redox:142.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.8                                                                             |
| pH                               | 7.05                                                                             |
| Conductivity (mS/cm)             | 1.39                                                                             |
| Turbidity (NTU)                  | 2.57                                                                             |
| Dissolved Oxygen (mg/L)          | 5.31                                                                             |
| Temperature (Degrees Celsius)    | 15.9                                                                             |
| Redox (ORP mV)                   | 142.1                                                                            |
| parameters                       | @10:45, DTW:65.8, pH:7.05, temp:15.9, cond:1.39, turb:2.57, DO:5.31, redox:142.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:50, DTW:65.8, pH:7.04, temp:15.9, cond:1.39, turb:3.17, DO:582, redox:143.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:50                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.8                                                                            |
| pH                               | 7.04                                                                            |
| Conductivity (mS/cm)             | 1.39                                                                            |
| Turbidity (NTU)                  | 3.17                                                                            |
| Dissolved Oxygen (mg/L)          | 582                                                                             |
| Temperature (Degrees Celsius)    | 15.9                                                                            |
| Redox (ORP mV)                   | 143.8                                                                           |
| parameters                       | @10:50, DTW:65.8, pH:7.04, temp:15.9, cond:1.39, turb:3.17, DO:582, redox:143.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 10:50   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 0.5     |

### **Sample Information**

|             |       |
|-------------|-------|
| Sample Time | 10:50 |
| Color       | None  |

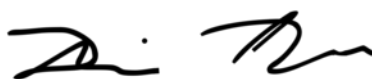
|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |
| Signature                |         |



Signed 2019-06-06 14:55:01 UTC



## 2019-02-27, MW-15-72, MW-15-72

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-02-27 09:51:33 EST by Billy Cobern    |
| Updated                                                                                           | 2019-02-27 10:17:42 EST by Christine Gregg |
| Location                                                                                          | 42.73774089, -84.58569665                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-02-27                                 |
| Well Identification                                                                               | MW-15-72                                   |
| Well ID                                                                                           | MW-15-72                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy snow 20's                           |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 57.82         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 70.35         |
| Water Column                                                                                                                                                                                                                                              | 12.53         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.04          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 68            |
| Purge Start                                                                                                                                                                                                                                               | 09:00         |

### @09:00, DTW:57.82, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 09:00                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 57.82                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @09:00, DTW:57.82, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:05, DTW:58.18, pH:7.08, temp:10.3, cond:1.1, turb:31.5, DO:0.89, redox:62.4

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 58.18 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.08  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.1                                                                             |
| Turbidity (NTU)               | 31.5                                                                            |
| Dissolved Oxygen (mg/L)       | 0.89                                                                            |
| Temperature (Degrees Celsius) | 10.3                                                                            |
| Redox (ORP mV)                | 62.4                                                                            |
| parameters                    | @09:05, DTW:58.18, pH:7.08, temp:10.3, cond:1.1, turb:31.5, DO:0.89, redox:62.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:10, DTW:58.15, pH:7.1, temp:10.6, cond:1.11, turb:26.3, DO:0.81, redox:58.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:10                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 58.15                                                                           |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.1                                                                             |
| Conductivity (mS/cm)             | 1.11                                                                            |
| Turbidity (NTU)                  | 26.3                                                                            |
| Dissolved Oxygen (mg/L)          | 0.81                                                                            |
| Temperature (Degrees Celsius)    | 10.6                                                                            |
| Redox (ORP mV)                   | 58.4                                                                            |
| parameters                       | @09:10, DTW:58.15, pH:7.1, temp:10.6, cond:1.11, turb:26.3, DO:0.81, redox:58.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:15, DTW:58.14, pH:7.1, temp:10.2, cond:1.1, turb:21.1, DO:0.81, redox:54.6**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 09:15                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 58.14                                                                          |
| Milliliters Purged (total)       | 1500                                                                           |
| pH                               | 7.1                                                                            |
| Conductivity (mS/cm)             | 1.1                                                                            |
| Turbidity (NTU)                  | 21.1                                                                           |
| Dissolved Oxygen (mg/L)          | 0.81                                                                           |
| Temperature (Degrees Celsius)    | 10.2                                                                           |
| Redox (ORP mV)                   | 54.6                                                                           |
| parameters                       | @09:15, DTW:58.14, pH:7.1, temp:10.2, cond:1.1, turb:21.1, DO:0.81, redox:54.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:20, DTW:58.13, pH:7.11, temp:10.1, cond:1.09, turb:16.7, DO:0.78, redox:52.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:20 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 58.13                                                                            |
| Milliliters Purged (total)    | 2000                                                                             |
| pH                            | 7.11                                                                             |
| Conductivity (mS/cm)          | 1.09                                                                             |
| Turbidity (NTU)               | 16.7                                                                             |
| Dissolved Oxygen (mg/L)       | 0.78                                                                             |
| Temperature (Degrees Celsius) | 10.1                                                                             |
| Redox (ORP mV)                | 52.6                                                                             |
| parameters                    | @09:20, DTW:58.13, pH:7.11, temp:10.1, cond:1.09, turb:16.7, DO:0.78, redox:52.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:25, DTW:58.13, pH:7.11, temp:9.8, cond:1.09, turb:14.1, DO:0.77, redox:50.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 58.13                                                                           |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 7.11                                                                            |
| Conductivity (mS/cm)             | 1.09                                                                            |
| Turbidity (NTU)                  | 14.1                                                                            |
| Dissolved Oxygen (mg/L)          | 0.77                                                                            |
| Temperature (Degrees Celsius)    | 9.8                                                                             |
| Redox (ORP mV)                   | 50.2                                                                            |
| parameters                       | @09:25, DTW:58.13, pH:7.11, temp:9.8, cond:1.09, turb:14.1, DO:0.77, redox:50.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:30, DTW:58.13, pH:7.12, temp:9.7, cond:1.1, turb:11.8, DO:0.77, redox:48**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 09:30                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 58.13                                                                        |
| Milliliters Purged (total)       | 3000                                                                         |
| pH                               | 7.12                                                                         |
| Conductivity (mS/cm)             | 1.1                                                                          |
| Turbidity (NTU)                  | 11.8                                                                         |
| Dissolved Oxygen (mg/L)          | 0.77                                                                         |
| Temperature (Degrees Celsius)    | 9.7                                                                          |
| Redox (ORP mV)                   | 48                                                                           |
| parameters                       | @09:30, DTW:58.13, pH:7.12, temp:9.7, cond:1.1, turb:11.8, DO:0.77, redox:48 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:35, DTW:58.13, pH:7.12, temp:10, cond:1.1, turb:9.61, DO:0.71, redox:45.6**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 09:35                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 58.13                                                                         |
| Milliliters Purged (total)       | 3500                                                                          |
| pH                               | 7.12                                                                          |
| Conductivity (mS/cm)             | 1.1                                                                           |
| Turbidity (NTU)                  | 9.61                                                                          |
| Dissolved Oxygen (mg/L)          | 0.71                                                                          |
| Temperature (Degrees Celsius)    | 10                                                                            |
| Redox (ORP mV)                   | 45.6                                                                          |
| parameters                       | @09:35, DTW:58.13, pH:7.12, temp:10, cond:1.1, turb:9.61, DO:0.71, redox:45.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:40, DTW:58.13, pH:7.12, temp:10, cond:1.09, turb:9.01, DO:0.72, redox:43.4**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 58.13                                                                          |
| Milliliters Purged (total)       | 4000                                                                           |
| pH                               | 7.12                                                                           |
| Conductivity (mS/cm)             | 1.09                                                                           |
| Turbidity (NTU)                  | 9.01                                                                           |
| Dissolved Oxygen (mg/L)          | 0.72                                                                           |
| Temperature (Degrees Celsius)    | 10                                                                             |
| Redox (ORP mV)                   | 43.4                                                                           |
| parameters                       | @09:40, DTW:58.13, pH:7.12, temp:10, cond:1.09, turb:9.01, DO:0.72, redox:43.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:45, DTW:58.13, pH:7.13, temp:10.2, cond:1.1, turb:8.69, DO:0.68, redox:41**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 58.13 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.13  |
| Conductivity (mS/cm)             | 1.1   |
| Turbidity (NTU)                  | 8.69  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.68                                                                          |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 10.2                                                                          |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 41                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @09:45, DTW:58.13, pH:7.13, temp:10.2, cond:1.1, turb:8.69, DO:0.68, redox:41 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                               |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 09:45                                                                         |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                   |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 4500                                                                          |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.58                                                                          |

## Sample Information

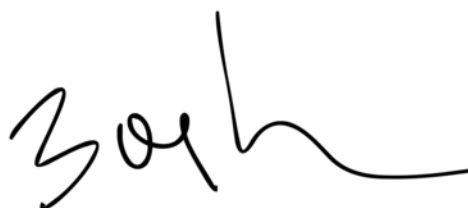
|               |       |
|---------------|-------|
| Sample Time   | 09:45 |
| Color         | Clear |
| Notable odors | No    |

## 1,4 Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4 Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |                |
|--------------------------|----------------|
| Well Location            | On site Plant2 |
| Condition of Well        | Good           |
| Well Locked at Arrival   | Yes            |
| Well Locked at Departure | Yes            |
| Signature                |                |



Signed 2019-02-27 14:53:08 UTC

## 2019-06-13, MW-15-72, MW-15-72

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-13 10:42:41 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-13 11:06:45 EDT by Christine Gregg |
| Location                                                                                          | 42.73773062, -84.58557537                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-13                                 |
| Well Identification                                                                               | MW-15-72                                   |
| Well ID                                                                                           | MW-15-72                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | MSMSD                                      |
| Weather                                                                                           | Cloudy Rainy 50's                          |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 57.85         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 71            |
| Water Column                                                                                                                                                                                                                                               | 13.15         |
| Gallons in Well                                                                                                                                                                                                                                            | 2.14          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder       |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                   | 68.5          |
| Purge Start                                                                                                                                                                                                                                                | 10:30         |

### @10:30, DTW:57.85, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 10:30                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 57.85                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @10:30, DTW:57.85, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:35, DTW:58.02, pH:7.02, temp:14.1, cond:1.18, turb:21.9, DO:0.67, redox:-90.4

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 58.02 |
| Milliliters Purged (total)       | 500   |

|                               |       |
|-------------------------------|-------|
| pH                            | 7.02  |
| Conductivity (mS/cm)          | 1.18  |
| Turbidity (NTU)               | 21.9  |
| Dissolved Oxygen (mg/L)       | 0.67  |
| Temperature (Degrees Celsius) | 14.1  |
| Redox (ORP mV)                | -90.4 |

parameters @10:35, DTW:58.02, pH:7.02, temp:14.1, cond:1.18, turb:21.9, DO:0.67, redox:-90.4

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:40, DTW:58.02, pH:7.02, temp:14.1, cond:1.18, turb:15.9, DO:0.59, redox:-90.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 58.02 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7.02  |
| Conductivity (mS/cm)             | 1.18  |
| Turbidity (NTU)                  | 15.9  |
| Dissolved Oxygen (mg/L)          | 0.59  |
| Temperature (Degrees Celsius)    | 14.1  |
| Redox (ORP mV)                   | -90.9 |

parameters @10:40, DTW:58.02, pH:7.02, temp:14.1, cond:1.18, turb:15.9, DO:0.59, redox:-90.9

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:45, DTW:58.02, pH:7.02, temp:14.1, cond:1.18, turb:14.1, DO:0.58, redox:-91.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 58.02 |
| Milliliters Purged (total)       | 1500  |
| pH                               | 7.02  |
| Conductivity (mS/cm)             | 1.18  |
| Turbidity (NTU)                  | 14.1  |
| Dissolved Oxygen (mg/L)          | 0.58  |
| Temperature (Degrees Celsius)    | 14.1  |
| Redox (ORP mV)                   | -91.2 |

parameters @10:45, DTW:58.02, pH:7.02, temp:14.1, cond:1.18, turb:14.1, DO:0.58, redox:-91.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:50, DTW:58.02, pH:7.02, temp:14.1, cond:1.18, turb:12.8, DO:0.56, redox:-91.4**

|              |       |
|--------------|-------|
| Reading Time | 10:50 |
|--------------|-------|

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 58.02                                                                             |
| Milliliters Purged (total)       | 2000                                                                              |
| pH                               | 7.02                                                                              |
| Conductivity (mS/cm)             | 1.18                                                                              |
| Turbidity (NTU)                  | 12.8                                                                              |
| Dissolved Oxygen (mg/L)          | 0.56                                                                              |
| Temperature (Degrees Celsius)    | 14.1                                                                              |
| Redox (ORP mV)                   | -91.4                                                                             |
| parameters                       | @10:50, DTW:58.02, pH:7.02, temp:14.1, cond:1.18, turb:12.8, DO:0.56, redox:-91.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:55, DTW:58.02, pH:7.02, temp:14.1, cond:1.19, turb:10.1, DO:0.57, redox:-91.6**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:55                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 58.02                                                                             |
| Milliliters Purged (total)       | 2500                                                                              |
| pH                               | 7.02                                                                              |
| Conductivity (mS/cm)             | 1.19                                                                              |
| Turbidity (NTU)                  | 10.1                                                                              |
| Dissolved Oxygen (mg/L)          | 0.57                                                                              |
| Temperature (Degrees Celsius)    | 14.1                                                                              |
| Redox (ORP mV)                   | -91.6                                                                             |
| parameters                       | @10:55, DTW:58.02, pH:7.02, temp:14.1, cond:1.19, turb:10.1, DO:0.57, redox:-91.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:00, DTW:58.02, pH:7.02, temp:14, cond:1.19, turb:9.26, DO:0.57, redox:-91.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 58.02                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.02                                                                            |
| Conductivity (mS/cm)             | 1.19                                                                            |
| Turbidity (NTU)                  | 9.26                                                                            |
| Dissolved Oxygen (mg/L)          | 0.57                                                                            |
| Temperature (Degrees Celsius)    | 14                                                                              |
| Redox (ORP mV)                   | -91.7                                                                           |
| parameters                       | @11:00, DTW:58.02, pH:7.02, temp:14, cond:1.19, turb:9.26, DO:0.57, redox:-91.7 |



Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:05, DTW:58.02, pH:7.02, temp:14, cond:1.19, turb:8.13, DO:0.57, redox:-91.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:05                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 58.02                                                                           |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 7.02                                                                            |
| Conductivity (mS/cm)             | 1.19                                                                            |
| Turbidity (NTU)                  | 8.13                                                                            |
| Dissolved Oxygen (mg/L)          | 0.57                                                                            |
| Temperature (Degrees Celsius)    | 14                                                                              |
| Redox (ORP mV)                   | -91.8                                                                           |
| parameters                       | @11:05, DTW:58.02, pH:7.02, temp:14, cond:1.19, turb:8.13, DO:0.57, redox:-91.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:10, DTW:58.02, pH:7.02, temp:14, cond:1.19, turb:7.21, DO:0.54, redox:-91.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:10                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 58.02                                                                           |
| Milliliters Purged (total)       | 4000                                                                            |
| pH                               | 7.02                                                                            |
| Conductivity (mS/cm)             | 1.19                                                                            |
| Turbidity (NTU)                  | 7.21                                                                            |
| Dissolved Oxygen (mg/L)          | 0.54                                                                            |
| Temperature (Degrees Celsius)    | 14                                                                              |
| Redox (ORP mV)                   | -91.9                                                                           |
| parameters                       | @11:10, DTW:58.02, pH:7.02, temp:14, cond:1.19, turb:7.21, DO:0.54, redox:-91.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:15, DTW:58.02, pH:7.02, temp:14, cond:1.19, turb:5.93, DO:0.54, redox:-91.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 58.02 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.02  |
| Conductivity (mS/cm)             | 1.19  |
| Turbidity (NTU)                  | 5.93  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.54                                                                            |
| Temperature (Degrees Celsius) | 14                                                                              |
| Redox (ORP mV)                | -91.8                                                                           |
| parameters                    | @11:15, DTW:58.02, pH:7.02, temp:14, cond:1.19, turb:5.93, DO:0.54, redox:-91.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:20, DTW:58.02, pH:7.02, temp:14.1, cond:1.2, turb:5.43, DO:0.54, redox:-91.8

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 58.02                                                                            |
| Milliliters Purged (total)       | 5000                                                                             |
| pH                               | 7.02                                                                             |
| Conductivity (mS/cm)             | 1.2                                                                              |
| Turbidity (NTU)                  | 5.43                                                                             |
| Dissolved Oxygen (mg/L)          | 0.54                                                                             |
| Temperature (Degrees Celsius)    | 14.1                                                                             |
| Redox (ORP mV)                   | -91.8                                                                            |
| parameters                       | @11:20, DTW:58.02, pH:7.02, temp:14.1, cond:1.2, turb:5.43, DO:0.54, redox:-91.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:25, DTW:58.02, pH:7.02, temp:14.1, cond:1.2, turb:5, DO:0.54, redox:-91.9

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 58.02                                                                         |
| Milliliters Purged (total)       | 5500                                                                          |
| pH                               | 7.02                                                                          |
| Conductivity (mS/cm)             | 1.2                                                                           |
| Turbidity (NTU)                  | 5                                                                             |
| Dissolved Oxygen (mg/L)          | 0.54                                                                          |
| Temperature (Degrees Celsius)    | 14.1                                                                          |
| Redox (ORP mV)                   | -91.9                                                                         |
| parameters                       | @11:25, DTW:58.02, pH:7.02, temp:14.1, cond:1.2, turb:5, DO:0.54, redox:-91.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 11:25       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 5500        |
| Well Volumes Purged           | 0.68        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:25 |
| Color         | Clear |
| Notable odors | No    |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 9          |
| Preservative         | HCL        |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 9           |
| Preservative         | HCL         |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 6              |
| Preservative         | None           |

## Well Information

|                          |                   |
|--------------------------|-------------------|
| Well Location            | Center of Plant 2 |
| Condition of Well        | Good              |
| Well Locked at Arrival   | Yes               |
| Well Locked at Departure | Yes               |

Photo of Well



Signature

3.11.16

Signed 2019-06-13 14:46:05 UTC

## 2019-12-05, MW-15-72

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-05 18:53:44 UTC by Gary Schafer |
| Updated                                                                                           | 2019-12-05 20:25:18 UTC by Gary Schafer |
| Location                                                                                          | 42.737806602421, -84.5857054554714      |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-12-05                              |
| Well ID                                                                                           | MW-15-72                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Overcast slight sun temp 33             |

## Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 57.78         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 70.31         |
| Water Column                                                                                                                                                                                                                                           | 12.53         |
| Gallons in Well                                                                                                                                                                                                                                        | 2.04          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Bladder       |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 58.72         |
| Purge Start                                                                                                                                                                                                                                            | 13:52         |

## @13:55, DTW:58.38, pH:7.12, temp:13, cond:1088, turb:624, DO:0.48, redox:-56.3

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 13:55                                                                          |
| Rate (mL/min)                 | 100                                                                            |
| Depth to Water (ft)           | 58.38                                                                          |
| pH                            | 7.12                                                                           |
| Conductivity (mS/cm)          | 1088                                                                           |
| Turbidity (NTU)               | 624                                                                            |
| Dissolved Oxygen (mg/L)       | 0.48                                                                           |
| Temperature (Degrees Celsius) | 13                                                                             |
| Redox (ORP mV)                | -56.3                                                                          |
| parameters                    | @13:55, DTW:58.38, pH:7.12, temp:13, cond:1088, turb:624, DO:0.48, redox:-56.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

## @14:00, DTW:58.48, pH:7.13, temp:13.2, cond:1121, turb:611, DO:0.56, redox:-57.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:00 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 58.48                                                                            |
| pH                            | 7.13                                                                             |
| Conductivity (mS/cm)          | 1121                                                                             |
| Turbidity (NTU)               | 611                                                                              |
| Dissolved Oxygen (mg/L)       | 0.56                                                                             |
| Temperature (Degrees Celsius) | 13.2                                                                             |
| Redox (ORP mV)                | -57.5                                                                            |
| parameters                    | @14:00, DTW:58.48, pH:7.13, temp:13.2, cond:1121, turb:611, DO:0.56, redox:-57.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:05, DTW:58.48, pH:7.18, temp:12.8, cond:1194, turb:211, DO:0.62, redox:-60**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:05                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 58.48                                                                          |
| pH                               | 7.18                                                                           |
| Conductivity (mS/cm)             | 1194                                                                           |
| Turbidity (NTU)                  | 211                                                                            |
| Dissolved Oxygen (mg/L)          | 0.62                                                                           |
| Temperature (Degrees Celsius)    | 12.8                                                                           |
| Redox (ORP mV)                   | -60                                                                            |
| parameters                       | @14:05, DTW:58.48, pH:7.18, temp:12.8, cond:1194, turb:211, DO:0.62, redox:-60 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:10, DTW:58.6, pH:7.11, temp:13.2, cond:1277, turb:76.9, DO:0.55, redox:-65**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:10                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 58.6                                                                           |
| pH                               | 7.11                                                                           |
| Conductivity (mS/cm)             | 1277                                                                           |
| Turbidity (NTU)                  | 76.9                                                                           |
| Dissolved Oxygen (mg/L)          | 0.55                                                                           |
| Temperature (Degrees Celsius)    | 13.2                                                                           |
| Redox (ORP mV)                   | -65                                                                            |
| parameters                       | @14:10, DTW:58.6, pH:7.11, temp:13.2, cond:1277, turb:76.9, DO:0.55, redox:-65 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:15, DTW:58.7, pH:7.11, temp:13.2, cond:1370, turb:34.3, DO:0.28, redox:-69**

|              |       |
|--------------|-------|
| Reading Time | 14:15 |
|--------------|-------|

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 58.7                                                                           |
| pH                               | 7.11                                                                           |
| Conductivity (mS/cm)             | 1370                                                                           |
| Turbidity (NTU)                  | 34.3                                                                           |
| Dissolved Oxygen (mg/L)          | 0.28                                                                           |
| Temperature (Degrees Celsius)    | 13.2                                                                           |
| Redox (ORP mV)                   | -69                                                                            |
| parameters                       | @14:15, DTW:58.7, pH:7.11, temp:13.2, cond:1370, turb:34.3, DO:0.28, redox:-69 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:20, DTW:58.7, pH:7.13, temp:13.3, cond:1375, turb:30.7, DO:0.26, redox:-69.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 58.7                                                                             |
| pH                               | 7.13                                                                             |
| Conductivity (mS/cm)             | 1375                                                                             |
| Turbidity (NTU)                  | 30.7                                                                             |
| Dissolved Oxygen (mg/L)          | 0.26                                                                             |
| Temperature (Degrees Celsius)    | 13.3                                                                             |
| Redox (ORP mV)                   | -69.8                                                                            |
| parameters                       | @14:20, DTW:58.7, pH:7.13, temp:13.3, cond:1375, turb:30.7, DO:0.26, redox:-69.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:25, DTW:58.7, pH:7.1, temp:12.7, cond:1394, turb:42.3, DO:0.23, redox:-71.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 58.7                                                                            |
| pH                               | 7.1                                                                             |
| Conductivity (mS/cm)             | 1394                                                                            |
| Turbidity (NTU)                  | 42.3                                                                            |
| Dissolved Oxygen (mg/L)          | 0.23                                                                            |
| Temperature (Degrees Celsius)    | 12.7                                                                            |
| Redox (ORP mV)                   | -71.3                                                                           |
| parameters                       | @14:25, DTW:58.7, pH:7.1, temp:12.7, cond:1394, turb:42.3, DO:0.23, redox:-71.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:30, DTW:58.72, pH:7.11, temp:13, cond:1388, turb:42.6, DO:0.25, redox:-71.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 58.72                                                                           |
| pH                               | 7.11                                                                            |
| Conductivity (mS/cm)             | 1388                                                                            |
| Turbidity (NTU)                  | 42.6                                                                            |
| Dissolved Oxygen (mg/L)          | 0.25                                                                            |
| Temperature (Degrees Celsius)    | 13                                                                              |
| Redox (ORP mV)                   | -71.4                                                                           |
| parameters                       | @14:30, DTW:58.72, pH:7.11, temp:13, cond:1388, turb:42.6, DO:0.25, redox:-71.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:35, DTW:58.72, pH:7.1, temp:13.3, cond:1391, turb:46, DO:0.26, redox:-71.7**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:35                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 58.72                                                                          |
| pH                               | 7.1                                                                            |
| Conductivity (mS/cm)             | 1391                                                                           |
| Turbidity (NTU)                  | 46                                                                             |
| Dissolved Oxygen (mg/L)          | 0.26                                                                           |
| Temperature (Degrees Celsius)    | 13.3                                                                           |
| Redox (ORP mV)                   | -71.7                                                                          |
| parameters                       | @14:35, DTW:58.72, pH:7.1, temp:13.3, cond:1391, turb:46, DO:0.26, redox:-71.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:40, DTW:58.72, pH:7.1, temp:13.2, cond:1398, turb:44, DO:0.24, redox:-72**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 14:40                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 58.72                                                                        |
| pH                               | 7.1                                                                          |
| Conductivity (mS/cm)             | 1398                                                                         |
| Turbidity (NTU)                  | 44                                                                           |
| Dissolved Oxygen (mg/L)          | 0.24                                                                         |
| Temperature (Degrees Celsius)    | 13.2                                                                         |
| Redox (ORP mV)                   | -72                                                                          |
| parameters                       | @14:40, DTW:58.72, pH:7.1, temp:13.2, cond:1398, turb:44, DO:0.24, redox:-72 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit



|                               |         |
|-------------------------------|---------|
| Purge End                     | 14:42   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 1       |
| Well Volumes Purged           | 0.49    |

### Sample Information

|               |               |
|---------------|---------------|
| Sample Time   | 14:42         |
| Color         | Slight turbid |
| Notable odors | Slight odor   |

### Well Information

|                          |                           |
|--------------------------|---------------------------|
| Well Location            | MW-15-72                  |
| Condition of Well        | Good                      |
| Well Locked at Arrival   | Yes                       |
| Well Locked at Departure | Yes                       |
| Comments                 | Well is a dup sample also |

Signature

A handwritten signature in black ink, appearing to be 'Gary' followed by a stylized surname.

Signed 2019-12-05 20:25:16 UTC

## 2019-06-13, MW-15-73, MW-15-73

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-13 09:42:41 EDT by Gary Schafer    |
| Updated                                                                                           | 2019-06-13 13:27:11 EDT by Christine Gregg |
| Location                                                                                          | 42.73863264, -84.58718805                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Gary Schafer                               |
| Date                                                                                              | 2019-06-13                                 |
| Well Identification                                                                               | MW-15-73                                   |
| Well ID                                                                                           | MW-15-73                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Lite raining temp 57                       |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 68.43         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 81.42         |
| Water Column                                                                                                                                                                                                                                              | 12.99         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.11          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                               | 09:33         |

### @09:35, DTW:68.43, pH:6.68, temp:13.1, cond:2.63, turb:372, DO:0.67, redox:-11.5

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 09:35                                                                            |
| Rate (mL/min)                 | 150                                                                              |
| Depth to Water (ft)           | 68.43                                                                            |
| pH                            | 6.68                                                                             |
| Conductivity (mS/cm)          | 2.63                                                                             |
| Turbidity (NTU)               | 372                                                                              |
| Dissolved Oxygen (mg/L)       | 0.67                                                                             |
| Temperature (Degrees Celsius) | 13.1                                                                             |
| Redox (ORP mV)                | -11.5                                                                            |
| parameters                    | @09:35, DTW:68.43, pH:6.68, temp:13.1, cond:2.63, turb:372, DO:0.67, redox:-11.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:40, DTW:68.43, pH:6.77, temp:12.7, cond:2.58, turb:501, DO:0.63, redox:-20.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:40 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 150                                                                              |
| Depth to Water (ft)           | 68.43                                                                            |
| pH                            | 6.77                                                                             |
| Conductivity (mS/cm)          | 2.58                                                                             |
| Turbidity (NTU)               | 501                                                                              |
| Dissolved Oxygen (mg/L)       | 0.63                                                                             |
| Temperature (Degrees Celsius) | 12.7                                                                             |
| Redox (ORP mV)                | -20.9                                                                            |
| parameters                    | @09:40, DTW:68.43, pH:6.77, temp:12.7, cond:2.58, turb:501, DO:0.63, redox:-20.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:45, DTW:68.43, pH:6.78, temp:12.6, cond:2.49, turb:119, DO:0.53, redox:-24.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 68.43                                                                            |
| pH                               | 6.78                                                                             |
| Conductivity (mS/cm)             | 2.49                                                                             |
| Turbidity (NTU)                  | 119                                                                              |
| Dissolved Oxygen (mg/L)          | 0.53                                                                             |
| Temperature (Degrees Celsius)    | 12.6                                                                             |
| Redox (ORP mV)                   | -24.4                                                                            |
| parameters                       | @09:45, DTW:68.43, pH:6.78, temp:12.6, cond:2.49, turb:119, DO:0.53, redox:-24.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:50, DTW:68.43, pH:6.78, temp:12.7, cond:2.51, turb:60.4, DO:0.51, redox:-26.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:50                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 68.43                                                                             |
| pH                               | 6.78                                                                              |
| Conductivity (mS/cm)             | 2.51                                                                              |
| Turbidity (NTU)                  | 60.4                                                                              |
| Dissolved Oxygen (mg/L)          | 0.51                                                                              |
| Temperature (Degrees Celsius)    | 12.7                                                                              |
| Redox (ORP mV)                   | -26.5                                                                             |
| parameters                       | @09:50, DTW:68.43, pH:6.78, temp:12.7, cond:2.51, turb:60.4, DO:0.51, redox:-26.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:55, DTW:68.43, pH:6.78, temp:12.6, cond:2.52, turb:126, DO:0.52, redox:-28.7**

|              |       |
|--------------|-------|
| Reading Time | 09:55 |
|--------------|-------|

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 68.43                                                                            |
| pH                               | 6.78                                                                             |
| Conductivity (mS/cm)             | 2.52                                                                             |
| Turbidity (NTU)                  | 126                                                                              |
| Dissolved Oxygen (mg/L)          | 0.52                                                                             |
| Temperature (Degrees Celsius)    | 12.6                                                                             |
| Redox (ORP mV)                   | -28.7                                                                            |
| parameters                       | @09:55, DTW:68.43, pH:6.78, temp:12.6, cond:2.52, turb:126, DO:0.52, redox:-28.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:00, DTW:68.43, pH:6.78, temp:12.6, cond:2.52, turb:27.8, DO:0.45, redox:-29.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:00                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 68.43                                                                             |
| pH                               | 6.78                                                                              |
| Conductivity (mS/cm)             | 2.52                                                                              |
| Turbidity (NTU)                  | 27.8                                                                              |
| Dissolved Oxygen (mg/L)          | 0.45                                                                              |
| Temperature (Degrees Celsius)    | 12.6                                                                              |
| Redox (ORP mV)                   | -29.2                                                                             |
| parameters                       | @10:00, DTW:68.43, pH:6.78, temp:12.6, cond:2.52, turb:27.8, DO:0.45, redox:-29.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:05, DTW:68.43, pH:6.78, temp:12.6, cond:2.51, turb:19.4, DO:0.53, redox:-30**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:05                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 68.43                                                                           |
| pH                               | 6.78                                                                            |
| Conductivity (mS/cm)             | 2.51                                                                            |
| Turbidity (NTU)                  | 19.4                                                                            |
| Dissolved Oxygen (mg/L)          | 0.53                                                                            |
| Temperature (Degrees Celsius)    | 12.6                                                                            |
| Redox (ORP mV)                   | -30                                                                             |
| parameters                       | @10:05, DTW:68.43, pH:6.78, temp:12.6, cond:2.51, turb:19.4, DO:0.53, redox:-30 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:10, DTW:68.43, pH:6.76, temp:12.6, cond:2.52, turb:13.6, DO:0.61, redox:-29.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 68.43                                                                             |
| pH                               | 6.76                                                                              |
| Conductivity (mS/cm)             | 2.52                                                                              |
| Turbidity (NTU)                  | 13.6                                                                              |
| Dissolved Oxygen (mg/L)          | 0.61                                                                              |
| Temperature (Degrees Celsius)    | 12.6                                                                              |
| Redox (ORP mV)                   | -29.9                                                                             |
| parameters                       | @10:10, DTW:68.43, pH:6.76, temp:12.6, cond:2.52, turb:13.6, DO:0.61, redox:-29.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:15, DTW:68.43, pH:6.78, temp:12.6, cond:2.52, turb:34.1, DO:0.58, redox:-30.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 68.43                                                                             |
| pH                               | 6.78                                                                              |
| Conductivity (mS/cm)             | 2.52                                                                              |
| Turbidity (NTU)                  | 34.1                                                                              |
| Dissolved Oxygen (mg/L)          | 0.58                                                                              |
| Temperature (Degrees Celsius)    | 12.6                                                                              |
| Redox (ORP mV)                   | -30.1                                                                             |
| parameters                       | @10:15, DTW:68.43, pH:6.78, temp:12.6, cond:2.52, turb:34.1, DO:0.58, redox:-30.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:20, DTW:68.43, pH:6.78, temp:12.6, cond:2.52, turb:14, DO:0.54, redox:-30**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 10:20                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 150                                                                           |
| Depth to Water (ft)              | 68.43                                                                         |
| pH                               | 6.78                                                                          |
| Conductivity (mS/cm)             | 2.52                                                                          |
| Turbidity (NTU)                  | 14                                                                            |
| Dissolved Oxygen (mg/L)          | 0.54                                                                          |
| Temperature (Degrees Celsius)    | 12.6                                                                          |
| Redox (ORP mV)                   | -30                                                                           |
| parameters                       | @10:20, DTW:68.43, pH:6.78, temp:12.6, cond:2.52, turb:14, DO:0.54, redox:-30 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:25, DTW:68.43, pH:6.79, temp:12.6, cond:2.52, turb:10.6, DO:0.58, redox:-29.6**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:25                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 68.43                                                                             |
| pH                               | 6.79                                                                              |
| Conductivity (mS/cm)             | 2.52                                                                              |
| Turbidity (NTU)                  | 10.6                                                                              |
| Dissolved Oxygen (mg/L)          | 0.58                                                                              |
| Temperature (Degrees Celsius)    | 12.6                                                                              |
| Redox (ORP mV)                   | -29.6                                                                             |
| parameters                       | @10:25, DTW:68.43, pH:6.79, temp:12.6, cond:2.52, turb:10.6, DO:0.58, redox:-29.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:30, DTW:68.43, pH:6.78, temp:12.6, cond:2.53, turb:6.37, DO:0.4, redox:-29.9**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 68.43                                                                            |
| pH                               | 6.78                                                                             |
| Conductivity (mS/cm)             | 2.53                                                                             |
| Turbidity (NTU)                  | 6.37                                                                             |
| Dissolved Oxygen (mg/L)          | 0.4                                                                              |
| Temperature (Degrees Celsius)    | 12.6                                                                             |
| Redox (ORP mV)                   | -29.9                                                                            |
| parameters                       | @10:30, DTW:68.43, pH:6.78, temp:12.6, cond:2.53, turb:6.37, DO:0.4, redox:-29.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:35, DTW:68.43, pH:6.73, temp:12.6, cond:2.54, turb:4.99, DO:0.48, redox:-29.8**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 68.43                                                                             |
| pH                               | 6.73                                                                              |
| Conductivity (mS/cm)             | 2.54                                                                              |
| Turbidity (NTU)                  | 4.99                                                                              |
| Dissolved Oxygen (mg/L)          | 0.48                                                                              |
| Temperature (Degrees Celsius)    | 12.6                                                                              |
| Redox (ORP mV)                   | -29.8                                                                             |
| parameters                       | @10:35, DTW:68.43, pH:6.73, temp:12.6, cond:2.54, turb:4.99, DO:0.48, redox:-29.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 10:36   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 3       |
| Well Volumes Purged           | 1.42    |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:36 |
| Color         | Clear |
| Notable odors | None  |
| Signature     |       |

A handwritten signature in black ink, appearing to read "Gustaf", is written over the signature line of the table.

Signed 2019-06-13 15:31:07 UTC

## 2019-06-05, MW-16-74, MW-16-74

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-05 10:41:47 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-05 11:46:59 EDT by Christine Gregg   |
| Location                                                                                          | 42.7368059, -84.5847615                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-05                                   |
| Well Identification                                                                               | MW-16-74                                     |
| Well ID                                                                                           | MW-16-74                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Replicate No. (e.g. Dup)                                                                          | Dup-02                                       |
| Weather                                                                                           | Overcast , warm                              |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 64.7          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 73.7          |
| Water Column                                                                                                                                                                                                                                           | 9             |
| Gallons in Well                                                                                                                                                                                                                                        | 1.46          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Bladder       |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 70            |
| Purge Start                                                                                                                                                                                                                                            | 10:55         |

### @11:00, DTW:64.7, pH:6.94, temp:18.3, cond:2.45, turb:33.2, DO:0.51, redox:12

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Reading Time                  | 11:00                                                                         |
| Rate (mL/min)                 | 200                                                                           |
| Depth to Water (ft)           | 64.7                                                                          |
| Milliliters Purged (total)    | 1000                                                                          |
| pH                            | 6.94                                                                          |
| Conductivity (mS/cm)          | 2.45                                                                          |
| Turbidity (NTU)               | 33.2                                                                          |
| Dissolved Oxygen (mg/L)       | 0.51                                                                          |
| Temperature (Degrees Celsius) | 18.3                                                                          |
| Redox (ORP mV)                | 12                                                                            |
| parameters                    | @11:00, DTW:64.7, pH:6.94, temp:18.3, cond:2.45, turb:33.2, DO:0.51, redox:12 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit



**@11:05, DTW:64.7, pH:6.96, temp:17.5, cond:2.41, turb:33.5, DO:0.25, redox:-15.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:05                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 64.7                                                                             |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 6.96                                                                             |
| Conductivity (mS/cm)             | 2.41                                                                             |
| Turbidity (NTU)                  | 33.5                                                                             |
| Dissolved Oxygen (mg/L)          | 0.25                                                                             |
| Temperature (Degrees Celsius)    | 17.5                                                                             |
| Redox (ORP mV)                   | -15.6                                                                            |
| parameters                       | @11:05, DTW:64.7, pH:6.96, temp:17.5, cond:2.41, turb:33.5, DO:0.25, redox:-15.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:10, DTW:64.7, pH:6.95, temp:17.9, cond:2.38, turb:32.7, DO:0.17, redox:-27.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 64.7                                                                             |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 6.95                                                                             |
| Conductivity (mS/cm)             | 2.38                                                                             |
| Turbidity (NTU)                  | 32.7                                                                             |
| Dissolved Oxygen (mg/L)          | 0.17                                                                             |
| Temperature (Degrees Celsius)    | 17.9                                                                             |
| Redox (ORP mV)                   | -27.5                                                                            |
| parameters                       | @11:10, DTW:64.7, pH:6.95, temp:17.9, cond:2.38, turb:32.7, DO:0.17, redox:-27.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:15, DTW:64.7, pH:6.95, temp:18.2, cond:2.37, turb:30.1, DO:0.2, redox:-34.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 64.7  |
| Milliliters Purged (total)       | 1000  |
| pH                               | 6.95  |
| Conductivity (mS/cm)             | 2.37  |
| Turbidity (NTU)                  | 30.1  |
| Dissolved Oxygen (mg/L)          | 0.2   |
| Temperature (Degrees Celsius)    | 18.2  |
| Redox (ORP mV)                   | -34.2 |

parameters

@11:15, DTW:64.7, pH:6.95, temp:18.2, cond:2.37, turb:30.1, DO:0.2, redox:-34.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:20, DTW:64.7, pH:6.96, temp:18.4, cond:2.36, turb:28.1, DO:0.16, redox:-39.5**

Reading Time 11:20

Minutes Elapsed between readings 5

Rate (mL/min) 200

Depth to Water (ft) 64.7

Milliliters Purged (total) 1000

pH 6.96

Conductivity (mS/cm) 2.36

Turbidity (NTU) 28.1

Dissolved Oxygen (mg/L) 0.16

Temperature (Degrees Celsius) 18.4

Redox (ORP mV) -39.5

parameters

@11:20, DTW:64.7, pH:6.96, temp:18.4, cond:2.36, turb:28.1, DO:0.16, redox:-39.5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:25, DTW:64.7, pH:6.95, temp:18.5, cond:2.36, turb:19.3, DO:0.2, redox:-41.1**

Reading Time 11:25

Minutes Elapsed between readings 5

Rate (mL/min) 200

Depth to Water (ft) 64.7

Milliliters Purged (total) 1000

pH 6.95

Conductivity (mS/cm) 2.36

Turbidity (NTU) 19.3

Dissolved Oxygen (mg/L) 0.2

Temperature (Degrees Celsius) 18.5

Redox (ORP mV) -41.1

parameters

@11:25, DTW:64.7, pH:6.95, temp:18.5, cond:2.36, turb:19.3, DO:0.2, redox:-41.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:30, DTW:64.7, pH:6.96, temp:18.4, cond:2.36, turb:13.7, DO:0.18, redox:-42.9**

Reading Time 11:30

Minutes Elapsed between readings 5

Rate (mL/min) 200

Depth to Water (ft) 64.7

Milliliters Purged (total) 1000

pH 6.96

Conductivity (mS/cm) 2.36

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Turbidity (NTU)               | 13.7                                                                             |
| Dissolved Oxygen (mg/L)       | 0.18                                                                             |
| Temperature (Degrees Celsius) | 18.4                                                                             |
| Redox (ORP mV)                | -42.9                                                                            |
| parameters                    | @11:30, DTW:64.7, pH:6.96, temp:18.4, cond:2.36, turb:13.7, DO:0.18, redox:-42.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:35, DTW:64.7, pH:6.96, temp:18.9, cond:2.36, turb:9.65, DO:0.16, redox:-44.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 64.7                                                                             |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 6.96                                                                             |
| Conductivity (mS/cm)             | 2.36                                                                             |
| Turbidity (NTU)                  | 9.65                                                                             |
| Dissolved Oxygen (mg/L)          | 0.16                                                                             |
| Temperature (Degrees Celsius)    | 18.9                                                                             |
| Redox (ORP mV)                   | -44.4                                                                            |
| parameters                       | @11:35, DTW:64.7, pH:6.96, temp:18.9, cond:2.36, turb:9.65, DO:0.16, redox:-44.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:40, DTW:64.7, pH:6.95, temp:18.9, cond:2.36, turb:9.1, DO:0.14, redox:-45.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 64.7                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 6.95                                                                            |
| Conductivity (mS/cm)             | 2.36                                                                            |
| Turbidity (NTU)                  | 9.1                                                                             |
| Dissolved Oxygen (mg/L)          | 0.14                                                                            |
| Temperature (Degrees Celsius)    | 18.9                                                                            |
| Redox (ORP mV)                   | -45.1                                                                           |
| parameters                       | @11:40, DTW:64.7, pH:6.95, temp:18.9, cond:2.36, turb:9.1, DO:0.14, redox:-45.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:45, DTW:64.7, pH:6.96, temp:18.8, cond:2.37, turb:8.95, DO:0.15, redox:-45.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Depth to Water (ft)           | 64.7                                                                             |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 6.96                                                                             |
| Conductivity (mS/cm)          | 2.37                                                                             |
| Turbidity (NTU)               | 8.95                                                                             |
| Dissolved Oxygen (mg/L)       | 0.15                                                                             |
| Temperature (Degrees Celsius) | 18.8                                                                             |
| Redox (ORP mV)                | -45.9                                                                            |
| parameters                    | @11:45, DTW:64.7, pH:6.96, temp:18.8, cond:2.37, turb:8.95, DO:0.15, redox:-45.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 11:45       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 9000        |
| Well Volumes Purged           | 1.63        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:50 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of stylized, cursive letters that appear to be 'RFP' followed by a long horizontal stroke.

Signed 2019-06-05 14:46:02 UTC

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## 2019-12-05, MW-16-74

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-05 13:34:07 UTC by Heather Woodrum |
| Updated                                                                                           | 2019-12-05 14:25:20 UTC by Heather Woodrum |
| Location                                                                                          | 42.7368184179466, -84.584760982622         |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Heather Woodrum                            |
| Date                                                                                              | 2019-12-05                                 |
| Well ID                                                                                           | MW-16-74                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cold, overcast                             |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 63.8          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 71            |
| Water Column                                                                                                                                                                                                                                                 | 7.2           |
| Gallons in Well                                                                                                                                                                                                                                              | 1.17          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 68            |
| Purge Start                                                                                                                                                                                                                                                  | 08:55         |

### @09:05, DTW:63.95, pH:7.05, temp:11.4, cond:2.16, turb:2.56, DO:1.06, redox:43.5

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 09:05                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 63.95                                                                            |
| pH                            | 7.05                                                                             |
| Conductivity (mS/cm)          | 2.16                                                                             |
| Turbidity (NTU)               | 2.56                                                                             |
| Dissolved Oxygen (mg/L)       | 1.06                                                                             |
| Temperature (Degrees Celsius) | 11.4                                                                             |
| Redox (ORP mV)                | 43.5                                                                             |
| parameters                    | @09:05, DTW:63.95, pH:7.05, temp:11.4, cond:2.16, turb:2.56, DO:1.06, redox:43.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:10, DTW:63.95, pH:7.07, temp:11.2, cond:2.36, turb:1.38, DO:0.33, redox:-58.6

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:10 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 63.95                                                                             |
| pH                            | 7.07                                                                              |
| Conductivity (mS/cm)          | 2.36                                                                              |
| Turbidity (NTU)               | 1.38                                                                              |
| Dissolved Oxygen (mg/L)       | 0.33                                                                              |
| Temperature (Degrees Celsius) | 11.2                                                                              |
| Redox (ORP mV)                | -58.6                                                                             |
| parameters                    | @09:10, DTW:63.95, pH:7.07, temp:11.2, cond:2.36, turb:1.38, DO:0.33, redox:-58.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:15, DTW:63.95, pH:7.05, temp:11.3, cond:2.44, turb:2.26, DO:0.26, redox:-68**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 63.95                                                                           |
| pH                               | 7.05                                                                            |
| Conductivity (mS/cm)             | 2.44                                                                            |
| Turbidity (NTU)                  | 2.26                                                                            |
| Dissolved Oxygen (mg/L)          | 0.26                                                                            |
| Temperature (Degrees Celsius)    | 11.3                                                                            |
| Redox (ORP mV)                   | -68                                                                             |
| parameters                       | @09:15, DTW:63.95, pH:7.05, temp:11.3, cond:2.44, turb:2.26, DO:0.26, redox:-68 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:20, DTW:63.95, pH:7.05, temp:11.3, cond:2.45, turb:2.95, DO:0.28, redox:-70.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 63.95                                                                             |
| pH                               | 7.05                                                                              |
| Conductivity (mS/cm)             | 2.45                                                                              |
| Turbidity (NTU)                  | 2.95                                                                              |
| Dissolved Oxygen (mg/L)          | 0.28                                                                              |
| Temperature (Degrees Celsius)    | 11.3                                                                              |
| Redox (ORP mV)                   | -70.5                                                                             |
| parameters                       | @09:20, DTW:63.95, pH:7.05, temp:11.3, cond:2.45, turb:2.95, DO:0.28, redox:-70.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:25, DTW:63.95, pH:7.06, temp:11.1, cond:2.46, turb:2.4, DO:0.26, redox:-70.9**

|              |       |
|--------------|-------|
| Reading Time | 09:25 |
|--------------|-------|

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                                |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 200                                                                              |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 63.95                                                                            |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.06                                                                             |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 2.46                                                                             |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 2.4                                                                              |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.26                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 11.1                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -70.9                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @09:25, DTW:63.95, pH:7.06, temp:11.1, cond:2.46, turb:2.4, DO:0.26, redox:-70.9 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 09:25                                                                            |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 09:30 |
| Color         | Clear |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |



Signature

A handwritten signature in black ink, consisting of stylized, overlapping loops and a trailing flourish.

Signed 2019-12-05 13:36:06 UTC

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## 2019-02-27, MW-16-75, MW-16-75

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-02-27 12:04:35 EST by Billy Cobern    |
| Updated                                                                                           | 2019-02-27 12:24:21 EST by Christine Gregg |
| Location                                                                                          | 42.73627615, -84.58557428                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-02-27                                 |
| Well Identification                                                                               | MW-16-75                                   |
| Well ID                                                                                           | MW-16-75                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy 20's                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 59.79         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 74.05         |
| Water Column                                                                                                                                                                                                                                              | 14.26         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.32          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 71.5          |
| Purge Start                                                                                                                                                                                                                                               | 12:05         |

### @12:05, DTW:59.79, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 12:05                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 59.79                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @12:05, DTW:59.79, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:10, DTW:59.92, pH:7.28, temp:5.2, cond:1.9, turb:32.1, DO:6.12, redox:41.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 59.92 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.28  |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.9                                                                            |
| Turbidity (NTU)               | 32.1                                                                           |
| Dissolved Oxygen (mg/L)       | 6.12                                                                           |
| Temperature (Degrees Celsius) | 5.2                                                                            |
| Redox (ORP mV)                | 41.9                                                                           |
| parameters                    | @12:10, DTW:59.92, pH:7.28, temp:5.2, cond:1.9, turb:32.1, DO:6.12, redox:41.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:15, DTW:59.95, pH:7.24, temp:5.5, cond:1.93, turb:23.9, DO:5.03, redox:39.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 59.95                                                                           |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.24                                                                            |
| Conductivity (mS/cm)             | 1.93                                                                            |
| Turbidity (NTU)                  | 23.9                                                                            |
| Dissolved Oxygen (mg/L)          | 5.03                                                                            |
| Temperature (Degrees Celsius)    | 5.5                                                                             |
| Redox (ORP mV)                   | 39.4                                                                            |
| parameters                       | @12:15, DTW:59.95, pH:7.24, temp:5.5, cond:1.93, turb:23.9, DO:5.03, redox:39.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:20, DTW:59.97, pH:7.22, temp:5.9, cond:1.95, turb:13.9, DO:3.64, redox:37.6**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:20                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 59.97                                                                           |
| Milliliters Purged (total)       | 1500                                                                            |
| pH                               | 7.22                                                                            |
| Conductivity (mS/cm)             | 1.95                                                                            |
| Turbidity (NTU)                  | 13.9                                                                            |
| Dissolved Oxygen (mg/L)          | 3.64                                                                            |
| Temperature (Degrees Celsius)    | 5.9                                                                             |
| Redox (ORP mV)                   | 37.6                                                                            |
| parameters                       | @12:20, DTW:59.97, pH:7.22, temp:5.9, cond:1.95, turb:13.9, DO:3.64, redox:37.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:25, DTW:59.95, pH:7.21, temp:6.3, cond:1.95, turb:11.3, DO:2.76, redox:35.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:25 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                             |
| Depth to Water (ft)           | 59.95                                                                           |
| Milliliters Purged (total)    | 2000                                                                            |
| pH                            | 7.21                                                                            |
| Conductivity (mS/cm)          | 1.95                                                                            |
| Turbidity (NTU)               | 11.3                                                                            |
| Dissolved Oxygen (mg/L)       | 2.76                                                                            |
| Temperature (Degrees Celsius) | 6.3                                                                             |
| Redox (ORP mV)                | 35.7                                                                            |
| parameters                    | @12:25, DTW:59.95, pH:7.21, temp:6.3, cond:1.95, turb:11.3, DO:2.76, redox:35.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:30, DTW:59.94, pH:7.2, temp:6, cond:1.97, turb:10.7, DO:2.58, redox:34**

|                                  |                                                                            |
|----------------------------------|----------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                      |
| Minutes Elapsed between readings | 5                                                                          |
| Rate (mL/min)                    | 100                                                                        |
| Depth to Water (ft)              | 59.94                                                                      |
| Milliliters Purged (total)       | 2500                                                                       |
| pH                               | 7.2                                                                        |
| Conductivity (mS/cm)             | 1.97                                                                       |
| Turbidity (NTU)                  | 10.7                                                                       |
| Dissolved Oxygen (mg/L)          | 2.58                                                                       |
| Temperature (Degrees Celsius)    | 6                                                                          |
| Redox (ORP mV)                   | 34                                                                         |
| parameters                       | @12:30, DTW:59.94, pH:7.2, temp:6, cond:1.97, turb:10.7, DO:2.58, redox:34 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:35, DTW:59.92, pH:7.2, temp:6.3, cond:1.99, turb:9.02, DO:2.01, redox:32.4**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 59.92                                                                          |
| Milliliters Purged (total)       | 3000                                                                           |
| pH                               | 7.2                                                                            |
| Conductivity (mS/cm)             | 1.99                                                                           |
| Turbidity (NTU)                  | 9.02                                                                           |
| Dissolved Oxygen (mg/L)          | 2.01                                                                           |
| Temperature (Degrees Celsius)    | 6.3                                                                            |
| Redox (ORP mV)                   | 32.4                                                                           |
| parameters                       | @12:35, DTW:59.92, pH:7.2, temp:6.3, cond:1.99, turb:9.02, DO:2.01, redox:32.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:40, DTW:59.92, pH:7.2, temp:6, cond:1.99, turb:8.43, DO:1.91, redox:31.3**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 12:40                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 59.92                                                                        |
| Milliliters Purged (total)       | 3500                                                                         |
| pH                               | 7.2                                                                          |
| Conductivity (mS/cm)             | 1.99                                                                         |
| Turbidity (NTU)                  | 8.43                                                                         |
| Dissolved Oxygen (mg/L)          | 1.91                                                                         |
| Temperature (Degrees Celsius)    | 6                                                                            |
| Redox (ORP mV)                   | 31.3                                                                         |
| parameters                       | @12:40, DTW:59.92, pH:7.2, temp:6, cond:1.99, turb:8.43, DO:1.91, redox:31.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:45, DTW:59.92, pH:7.19, temp:6.2, cond:1.99, turb:8.12, DO:1.94, redox:30**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 12:45                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 59.92                                                                         |
| Milliliters Purged (total)       | 4000                                                                          |
| pH                               | 7.19                                                                          |
| Conductivity (mS/cm)             | 1.99                                                                          |
| Turbidity (NTU)                  | 8.12                                                                          |
| Dissolved Oxygen (mg/L)          | 1.94                                                                          |
| Temperature (Degrees Celsius)    | 6.2                                                                           |
| Redox (ORP mV)                   | 30                                                                            |
| parameters                       | @12:45, DTW:59.92, pH:7.19, temp:6.2, cond:1.99, turb:8.12, DO:1.94, redox:30 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 12:45       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 4000        |
| Well Volumes Purged           | 0.46        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:45 |
| Color         | Clear |
| Notable odors | No    |

## Nitrate

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | Nitrate        |
| Container Type       | 125 mL Plastic |
| Number of Containers | 1              |
| Preservative         | None           |

## Well Information

|                          |                 |
|--------------------------|-----------------|
| Well Location            | On site Plant 2 |
| Condition of Well        | Good            |
| Well Locked at Arrival   | Yes             |
| Well Locked at Departure | Yes             |

Signature

A handwritten signature in black ink, appearing to be 'Zeph' followed by a long horizontal flourish.

Signed 2019-02-27 17:06:25 UTC

## 2019-06-05, MW-16-75, MW-16-75

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-05 12:51:50 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-05 13:52:53 EDT by Christine Gregg   |
| Location                                                                                          | 42.7362544, -84.5854951                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-05                                   |
| Well Identification                                                                               | MW-16-75                                     |
| Well ID                                                                                           | MW-16-75                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Weather                                                                                           | Cloudy, rainy                                |

### Evacuation Details

|                                                                                                                                                                                                                                                                       |                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                      | Top of Casing      |
| Casing Diameter (inches)                                                                                                                                                                                                                                              | 2                  |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                           | 61.25              |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                                  | 74.1               |
| Water Column                                                                                                                                                                                                                                                          | 12.849999999999994 |
| Gallons in Well                                                                                                                                                                                                                                                       | 2.09               |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1 \text{ foot}$ ] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                    |
| Purge Method                                                                                                                                                                                                                                                          | Low-Flow           |
| Type of Equipment used                                                                                                                                                                                                                                                | Bladder            |
| Sample Method                                                                                                                                                                                                                                                         | Low-Flow           |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                              | 71                 |
| Purge Start                                                                                                                                                                                                                                                           | 13:05              |

### @13:15, DTW:64.3, pH:6.98, temp:17.3, cond:2.19, turb:40.4, DO:0.57, redox:37.5

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 13:15                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 64.3                                                                            |
| pH                            | 6.98                                                                            |
| Conductivity (mS/cm)          | 2.19                                                                            |
| Turbidity (NTU)               | 40.4                                                                            |
| Dissolved Oxygen (mg/L)       | 0.57                                                                            |
| Temperature (Degrees Celsius) | 17.3                                                                            |
| Redox (ORP mV)                | 37.5                                                                            |
| parameters                    | @13:15, DTW:64.3, pH:6.98, temp:17.3, cond:2.19, turb:40.4, DO:0.57, redox:37.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:20, DTW:64.3, pH:6.99, temp:17.3, cond:2.17, turb:33.7, DO:0.33, redox:18.6

|              |       |
|--------------|-------|
| Reading Time | 13:20 |
|--------------|-------|

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 64.3                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 6.99                                                                            |
| Conductivity (mS/cm)             | 2.17                                                                            |
| Turbidity (NTU)                  | 33.7                                                                            |
| Dissolved Oxygen (mg/L)          | 0.33                                                                            |
| Temperature (Degrees Celsius)    | 17.3                                                                            |
| Redox (ORP mV)                   | 18.6                                                                            |
| parameters                       | @13:20, DTW:64.3, pH:6.99, temp:17.3, cond:2.17, turb:33.7, DO:0.33, redox:18.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:25, DTW:64.3, pH:6.99, temp:16.9, cond:2.17, turb:34.4, DO:0.24, redox:-6.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 64.3                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 6.99                                                                            |
| Conductivity (mS/cm)             | 2.17                                                                            |
| Turbidity (NTU)                  | 34.4                                                                            |
| Dissolved Oxygen (mg/L)          | 0.24                                                                            |
| Temperature (Degrees Celsius)    | 16.9                                                                            |
| Redox (ORP mV)                   | -6.2                                                                            |
| parameters                       | @13:25, DTW:64.3, pH:6.99, temp:16.9, cond:2.17, turb:34.4, DO:0.24, redox:-6.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:30, DTW:64.3, pH:6.99, temp:16.8, cond:2.16, turb:40.6, DO:0.18, redox:-21.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 64.3                                                                             |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 6.99                                                                             |
| Conductivity (mS/cm)             | 2.16                                                                             |
| Turbidity (NTU)                  | 40.6                                                                             |
| Dissolved Oxygen (mg/L)          | 0.18                                                                             |
| Temperature (Degrees Celsius)    | 16.8                                                                             |
| Redox (ORP mV)                   | -21.8                                                                            |
| parameters                       | @13:30, DTW:64.3, pH:6.99, temp:16.8, cond:2.16, turb:40.6, DO:0.18, redox:-21.8 |



Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:35, DTW:64.3, pH:6.99, temp:16.5, cond:2.16, turb:40.2, DO:0.17, redox:-30

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 64.3                                                                           |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 6.99                                                                           |
| Conductivity (mS/cm)             | 2.16                                                                           |
| Turbidity (NTU)                  | 40.2                                                                           |
| Dissolved Oxygen (mg/L)          | 0.17                                                                           |
| Temperature (Degrees Celsius)    | 16.5                                                                           |
| Redox (ORP mV)                   | -30                                                                            |
| parameters                       | @13:35, DTW:64.3, pH:6.99, temp:16.5, cond:2.16, turb:40.2, DO:0.17, redox:-30 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:40, DTW:64.3, pH:6.99, temp:16.7, cond:2.15, turb:41.3, DO:0.15, redox:-35.6

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 64.3                                                                             |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 6.99                                                                             |
| Conductivity (mS/cm)             | 2.15                                                                             |
| Turbidity (NTU)                  | 41.3                                                                             |
| Dissolved Oxygen (mg/L)          | 0.15                                                                             |
| Temperature (Degrees Celsius)    | 16.7                                                                             |
| Redox (ORP mV)                   | -35.6                                                                            |
| parameters                       | @13:40, DTW:64.3, pH:6.99, temp:16.7, cond:2.15, turb:41.3, DO:0.15, redox:-35.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:45, DTW:64.3, pH:6.99, temp:16.2, cond:2.15, turb:42.2, DO:0.12, redox:-40.6

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 64.3  |
| Milliliters Purged (total)       | 1000  |
| pH                               | 6.99  |
| Conductivity (mS/cm)             | 2.15  |
| Turbidity (NTU)                  | 42.2  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.12                                                                             |
| Temperature (Degrees Celsius) | 16.2                                                                             |
| Redox (ORP mV)                | -40.6                                                                            |
| parameters                    | @13:45, DTW:64.3, pH:6.99, temp:16.2, cond:2.15, turb:42.2, DO:0.12, redox:-40.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:50, DTW:64.3, pH:6.99, temp:16.1, cond:2.16, turb:44.4, DO:0.12, redox:-41.1

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:50                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 64.3                                                                             |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 6.99                                                                             |
| Conductivity (mS/cm)             | 2.16                                                                             |
| Turbidity (NTU)                  | 44.4                                                                             |
| Dissolved Oxygen (mg/L)          | 0.12                                                                             |
| Temperature (Degrees Celsius)    | 16.1                                                                             |
| Redox (ORP mV)                   | -41.1                                                                            |
| parameters                       | @13:50, DTW:64.3, pH:6.99, temp:16.1, cond:2.16, turb:44.4, DO:0.12, redox:-41.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:55, DTW:64.3, pH:6.99, temp:16.2, cond:2.16, turb:43.1, DO:0.11, redox:-42.3

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 64.3                                                                             |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 6.99                                                                             |
| Conductivity (mS/cm)             | 2.16                                                                             |
| Turbidity (NTU)                  | 43.1                                                                             |
| Dissolved Oxygen (mg/L)          | 0.11                                                                             |
| Temperature (Degrees Celsius)    | 16.2                                                                             |
| Redox (ORP mV)                   | -42.3                                                                            |
| parameters                       | @13:55, DTW:64.3, pH:6.99, temp:16.2, cond:2.16, turb:43.1, DO:0.11, redox:-42.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 13:55       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 10000       |
| Well Volumes Purged           | 1.26        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:00 |
| Color         | Clear |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to be 'APR', is written on the page.

Signed 2019-06-05 16:53:47 UTC

## 2019-12-05, MW-16-75

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-05 17:47:14 UTC by Heather Woodrum |
| Updated                                                                                           | 2019-12-05 18:35:49 UTC by Heather Woodrum |
| Location                                                                                          | 42.7362590097289, -84.5854936447782        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Heather Woodrum                            |
| Date                                                                                              | 2019-12-05                                 |
| Well ID                                                                                           | MW-16-75                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cold, overcast                             |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 60.5          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 71            |
| Water Column                                                                                                                                                                                                                                                 | 10.5          |
| Gallons in Well                                                                                                                                                                                                                                              | 1.71          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 68            |
| Purge Start                                                                                                                                                                                                                                                  | 13:00         |

### @13:10, DTW:62, pH:7.2, temp:11.4, cond:2.08, turb:8.9, DO:1.49, redox:-90.4

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Reading Time                  | 13:10                                                                        |
| Rate (mL/min)                 | 200                                                                          |
| Depth to Water (ft)           | 62                                                                           |
| pH                            | 7.2                                                                          |
| Conductivity (mS/cm)          | 2.08                                                                         |
| Turbidity (NTU)               | 8.9                                                                          |
| Dissolved Oxygen (mg/L)       | 1.49                                                                         |
| Temperature (Degrees Celsius) | 11.4                                                                         |
| Redox (ORP mV)                | -90.4                                                                        |
| parameters                    | @13:10, DTW:62, pH:7.2, temp:11.4, cond:2.08, turb:8.9, DO:1.49, redox:-90.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:15, DTW:62, pH:7.16, temp:11.1, cond:2.13, turb:9.25, DO:0.95, redox:-95

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:15 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                          |
| Depth to Water (ft)           | 62                                                                           |
| pH                            | 7.16                                                                         |
| Conductivity (mS/cm)          | 2.13                                                                         |
| Turbidity (NTU)               | 9.25                                                                         |
| Dissolved Oxygen (mg/L)       | 0.95                                                                         |
| Temperature (Degrees Celsius) | 11.1                                                                         |
| Redox (ORP mV)                | -95                                                                          |
| parameters                    | @13:15, DTW:62, pH:7.16, temp:11.1, cond:2.13, turb:9.25, DO:0.95, redox:-95 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:20, DTW:62, pH:7.13, temp:11.4, cond:2.19, turb:8.08, DO:0.66, redox:-99**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 62                                                                           |
| pH                               | 7.13                                                                         |
| Conductivity (mS/cm)             | 2.19                                                                         |
| Turbidity (NTU)                  | 8.08                                                                         |
| Dissolved Oxygen (mg/L)          | 0.66                                                                         |
| Temperature (Degrees Celsius)    | 11.4                                                                         |
| Redox (ORP mV)                   | -99                                                                          |
| parameters                       | @13:20, DTW:62, pH:7.13, temp:11.4, cond:2.19, turb:8.08, DO:0.66, redox:-99 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:25, DTW:62, pH:7.14, temp:11.2, cond:2.19, turb:7.98, DO:0.6, redox:-99.7**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 13:25                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 62                                                                            |
| pH                               | 7.14                                                                          |
| Conductivity (mS/cm)             | 2.19                                                                          |
| Turbidity (NTU)                  | 7.98                                                                          |
| Dissolved Oxygen (mg/L)          | 0.6                                                                           |
| Temperature (Degrees Celsius)    | 11.2                                                                          |
| Redox (ORP mV)                   | -99.7                                                                         |
| parameters                       | @13:25, DTW:62, pH:7.14, temp:11.2, cond:2.19, turb:7.98, DO:0.6, redox:-99.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:30, DTW:62, pH:7.13, temp:11.4, cond:2.19, turb:8.08, DO:0.59, redox:-101.3**

|              |       |
|--------------|-------|
| Reading Time | 13:30 |
|--------------|-------|

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 62                                                                              |
| pH                               | 7.13                                                                            |
| Conductivity (mS/cm)             | 2.19                                                                            |
| Turbidity (NTU)                  | 8.08                                                                            |
| Dissolved Oxygen (mg/L)          | 0.59                                                                            |
| Temperature (Degrees Celsius)    | 11.4                                                                            |
| Redox (ORP mV)                   | -101.3                                                                          |
| parameters                       | @13:30, DTW:62, pH:7.13, temp:11.4, cond:2.19, turb:8.08, DO:0.59, redox:-101.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:35, DTW:62, pH:7.13, temp:11.3, cond:2.19, turb:7.07, DO:0.57, redox:-102.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 62                                                                              |
| pH                               | 7.13                                                                            |
| Conductivity (mS/cm)             | 2.19                                                                            |
| Turbidity (NTU)                  | 7.07                                                                            |
| Dissolved Oxygen (mg/L)          | 0.57                                                                            |
| Temperature (Degrees Celsius)    | 11.3                                                                            |
| Redox (ORP mV)                   | -102.7                                                                          |
| parameters                       | @13:35, DTW:62, pH:7.13, temp:11.3, cond:2.19, turb:7.07, DO:0.57, redox:-102.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 13:35 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:40 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of several loops and strokes, appearing to be a stylized representation of a name.

Signed 2019-12-05 17:48:42 UTC

---

## 2019-06-10, MW-16-76, MW-16-76

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-10 14:02:45 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-10 14:32:22 EDT by Christine Gregg   |
| Location                                                                                          | 42.7366112, -84.5871603                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-10                                   |
| Well Identification                                                                               | MW-16-76                                     |
| Well ID                                                                                           | MW-16-76                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Weather                                                                                           | Overcast                                     |

### Evacuation Details

|                                                                                                                                                                                                                                                           |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing     |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2                 |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 64.05             |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 82.15             |
| Water Column                                                                                                                                                                                                                                              | 18.10000000000001 |
| Gallons in Well                                                                                                                                                                                                                                           | 2.94              |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                   |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow          |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder           |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow          |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 76                |
| Purge Start                                                                                                                                                                                                                                               | 14:00             |

### @14:10, DTW:72.22, pH:7.16, temp:13.1, cond:1.85, turb:14.3, DO:0.61, redox:-48.5

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 14:10                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 72.22                                                                             |
| Milliliters Purged (total)    | 2000                                                                              |
| pH                            | 7.16                                                                              |
| Conductivity (mS/cm)          | 1.85                                                                              |
| Turbidity (NTU)               | 14.3                                                                              |
| Dissolved Oxygen (mg/L)       | 0.61                                                                              |
| Temperature (Degrees Celsius) | 13.1                                                                              |
| Redox (ORP mV)                | -48.5                                                                             |
| parameters                    | @14:10, DTW:72.22, pH:7.16, temp:13.1, cond:1.85, turb:14.3, DO:0.61, redox:-48.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:15, DTW:72.22, pH:7.13, temp:13.2, cond:1.84, turb:7.63, DO:0.45, redox:-61.3



|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 72.22                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 7.13                                                                              |
| Conductivity (mS/cm)             | 1.84                                                                              |
| Turbidity (NTU)                  | 7.63                                                                              |
| Dissolved Oxygen (mg/L)          | 0.45                                                                              |
| Temperature (Degrees Celsius)    | 13.2                                                                              |
| Redox (ORP mV)                   | -61.3                                                                             |
| parameters                       | @14:15, DTW:72.22, pH:7.13, temp:13.2, cond:1.84, turb:7.63, DO:0.45, redox:-61.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:20, DTW:72.22, pH:7.13, temp:13.3, cond:1.84, turb:5.32, DO:0.49, redox:-63.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 72.22                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 7.13                                                                              |
| Conductivity (mS/cm)             | 1.84                                                                              |
| Turbidity (NTU)                  | 5.32                                                                              |
| Dissolved Oxygen (mg/L)          | 0.49                                                                              |
| Temperature (Degrees Celsius)    | 13.3                                                                              |
| Redox (ORP mV)                   | -63.4                                                                             |
| parameters                       | @14:20, DTW:72.22, pH:7.13, temp:13.3, cond:1.84, turb:5.32, DO:0.49, redox:-63.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:25, DTW:72.22, pH:7.14, temp:13.4, cond:1.84, turb:1.21, DO:0.5, redox:-65.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 72.22                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.14                                                                             |
| Conductivity (mS/cm)             | 1.84                                                                             |
| Turbidity (NTU)                  | 1.21                                                                             |
| Dissolved Oxygen (mg/L)          | 0.5                                                                              |
| Temperature (Degrees Celsius)    | 13.4                                                                             |
| Redox (ORP mV)                   | -65.4                                                                            |
| parameters                       | @14:25, DTW:72.22, pH:7.14, temp:13.4, cond:1.84, turb:1.21, DO:0.5, redox:-65.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:30, DTW:72.22, pH:7.14, temp:13.2, cond:1.85, turb:0.65, DO:0.53, redox:-67.3**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:30                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 72.22                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 7.14                                                                              |
| Conductivity (mS/cm)             | 1.85                                                                              |
| Turbidity (NTU)                  | 0.65                                                                              |
| Dissolved Oxygen (mg/L)          | 0.53                                                                              |
| Temperature (Degrees Celsius)    | 13.2                                                                              |
| Redox (ORP mV)                   | -67.3                                                                             |
| parameters                       | @14:30, DTW:72.22, pH:7.14, temp:13.2, cond:1.85, turb:0.65, DO:0.53, redox:-67.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:35, DTW:72.22, pH:7.14, temp:13.3, cond:1.84, turb:0.32, DO:0.52, redox:-67.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 72.22                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 7.14                                                                              |
| Conductivity (mS/cm)             | 1.84                                                                              |
| Turbidity (NTU)                  | 0.32                                                                              |
| Dissolved Oxygen (mg/L)          | 0.52                                                                              |
| Temperature (Degrees Celsius)    | 13.3                                                                              |
| Redox (ORP mV)                   | -67.9                                                                             |
| parameters                       | @14:35, DTW:72.22, pH:7.14, temp:13.3, cond:1.84, turb:0.32, DO:0.52, redox:-67.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 14:35       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 6000        |
| Well Volumes Purged           | 0.54        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:40 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to be 'APM' with a stylized flourish at the end.

Signed 2019-06-10 18:04:56 UTC

## 2019-02-27, MW-16-77, MW-16-77

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-02-27 11:12:55 EST by Billy Cobern    |
| Updated                                                                                           | 2019-02-27 11:31:36 EST by Christine Gregg |
| Location                                                                                          | 42.7363917, -84.58621164                   |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-02-27                                 |
| Well Identification                                                                               | MW-16-77                                   |
| Well ID                                                                                           | MW-16-77                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy 20's                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 59.46         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 73.95         |
| Water Column                                                                                                                                                                                                                                              | 14.49         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.35          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 71            |
| Purge Start                                                                                                                                                                                                                                               | 10:30         |

### @10:30, DTW:59.46, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 10:30                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 59.46                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @10:30, DTW:59.46, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:35, DTW:59.85, pH:7.29, temp:5.1, cond:1.74, turb:21.3, DO:1.69, redox:44.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 59.85 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.29  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.74                                                                            |
| Turbidity (NTU)               | 21.3                                                                            |
| Dissolved Oxygen (mg/L)       | 1.69                                                                            |
| Temperature (Degrees Celsius) | 5.1                                                                             |
| Redox (ORP mV)                | 44.3                                                                            |
| parameters                    | @10:35, DTW:59.85, pH:7.29, temp:5.1, cond:1.74, turb:21.3, DO:1.69, redox:44.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:40, DTW:59.99, pH:7.28, temp:5.1, cond:1.74, turb:24.9, DO:1.56, redox:43.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 59.99                                                                           |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.28                                                                            |
| Conductivity (mS/cm)             | 1.74                                                                            |
| Turbidity (NTU)                  | 24.9                                                                            |
| Dissolved Oxygen (mg/L)          | 1.56                                                                            |
| Temperature (Degrees Celsius)    | 5.1                                                                             |
| Redox (ORP mV)                   | 43.9                                                                            |
| parameters                       | @10:40, DTW:59.99, pH:7.28, temp:5.1, cond:1.74, turb:24.9, DO:1.56, redox:43.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:45, DTW:60.12, pH:7.28, temp:5, cond:1.74, turb:22.7, DO:1.53, redox:43.5**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 10:45                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 60.12                                                                         |
| Milliliters Purged (total)       | 1500                                                                          |
| pH                               | 7.28                                                                          |
| Conductivity (mS/cm)             | 1.74                                                                          |
| Turbidity (NTU)                  | 22.7                                                                          |
| Dissolved Oxygen (mg/L)          | 1.53                                                                          |
| Temperature (Degrees Celsius)    | 5                                                                             |
| Redox (ORP mV)                   | 43.5                                                                          |
| parameters                       | @10:45, DTW:60.12, pH:7.28, temp:5, cond:1.74, turb:22.7, DO:1.53, redox:43.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:50, DTW:60.24, pH:7.28, temp:5, cond:1.74, turb:20.2, DO:1.45, redox:43.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:50 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                           |
| Depth to Water (ft)           | 60.24                                                                         |
| Milliliters Purged (total)    | 2000                                                                          |
| pH                            | 7.28                                                                          |
| Conductivity (mS/cm)          | 1.74                                                                          |
| Turbidity (NTU)               | 20.2                                                                          |
| Dissolved Oxygen (mg/L)       | 1.45                                                                          |
| Temperature (Degrees Celsius) | 5                                                                             |
| Redox (ORP mV)                | 43.2                                                                          |
| parameters                    | @10:50, DTW:60.24, pH:7.28, temp:5, cond:1.74, turb:20.2, DO:1.45, redox:43.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:55, DTW:60.3, pH:7.28, temp:5, cond:1.74, turb:13.1, DO:1.35, redox:42.7**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 10:55                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 60.3                                                                         |
| Milliliters Purged (total)       | 2500                                                                         |
| pH                               | 7.28                                                                         |
| Conductivity (mS/cm)             | 1.74                                                                         |
| Turbidity (NTU)                  | 13.1                                                                         |
| Dissolved Oxygen (mg/L)          | 1.35                                                                         |
| Temperature (Degrees Celsius)    | 5                                                                            |
| Redox (ORP mV)                   | 42.7                                                                         |
| parameters                       | @10:55, DTW:60.3, pH:7.28, temp:5, cond:1.74, turb:13.1, DO:1.35, redox:42.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:00, DTW:60.36, pH:7.28, temp:5, cond:1.74, turb:11.4, DO:1.33, redox:42.3**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 11:00                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 60.36                                                                         |
| Milliliters Purged (total)       | 3000                                                                          |
| pH                               | 7.28                                                                          |
| Conductivity (mS/cm)             | 1.74                                                                          |
| Turbidity (NTU)                  | 11.4                                                                          |
| Dissolved Oxygen (mg/L)          | 1.33                                                                          |
| Temperature (Degrees Celsius)    | 5                                                                             |
| Redox (ORP mV)                   | 42.3                                                                          |
| parameters                       | @11:00, DTW:60.36, pH:7.28, temp:5, cond:1.74, turb:11.4, DO:1.33, redox:42.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:05, DTW:60.39, pH:7.28, temp:4.9, cond:1.74, turb:9.91, DO:1.29, redox:41.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:05                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 60.39                                                                           |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 7.28                                                                            |
| Conductivity (mS/cm)             | 1.74                                                                            |
| Turbidity (NTU)                  | 9.91                                                                            |
| Dissolved Oxygen (mg/L)          | 1.29                                                                            |
| Temperature (Degrees Celsius)    | 4.9                                                                             |
| Redox (ORP mV)                   | 41.9                                                                            |
| parameters                       | @11:05, DTW:60.39, pH:7.28, temp:4.9, cond:1.74, turb:9.91, DO:1.29, redox:41.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:10, DTW:60.44, pH:7.28, temp:4.9, cond:1.74, turb:9.45, DO:1.26, redox:41.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:10                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 60.44                                                                           |
| Milliliters Purged (total)       | 4000                                                                            |
| pH                               | 7.28                                                                            |
| Conductivity (mS/cm)             | 1.74                                                                            |
| Turbidity (NTU)                  | 9.45                                                                            |
| Dissolved Oxygen (mg/L)          | 1.26                                                                            |
| Temperature (Degrees Celsius)    | 4.9                                                                             |
| Redox (ORP mV)                   | 41.5                                                                            |
| parameters                       | @11:10, DTW:60.44, pH:7.28, temp:4.9, cond:1.74, turb:9.45, DO:1.26, redox:41.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:15, DTW:60.49, pH:7.28, temp:4.8, cond:1.74, turb:8.65, DO:1.26, redox:41.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 60.49 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.28  |
| Conductivity (mS/cm)             | 1.74  |
| Turbidity (NTU)                  | 8.65  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 1.26                                                                            |
| Temperature (Degrees Celsius) | 4.8                                                                             |
| Redox (ORP mV)                | 41.3                                                                            |
| parameters                    | @11:15, DTW:60.49, pH:7.28, temp:4.8, cond:1.74, turb:8.65, DO:1.26, redox:41.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:20, DTW:60.54, pH:7.28, temp:4.9, cond:1.75, turb:8.21, DO:1.23, redox:41.1

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:20                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 60.54                                                                           |
| Milliliters Purged (total)       | 5000                                                                            |
| pH                               | 7.28                                                                            |
| Conductivity (mS/cm)             | 1.75                                                                            |
| Turbidity (NTU)                  | 8.21                                                                            |
| Dissolved Oxygen (mg/L)          | 1.23                                                                            |
| Temperature (Degrees Celsius)    | 4.9                                                                             |
| Redox (ORP mV)                   | 41.1                                                                            |
| parameters                       | @11:20, DTW:60.54, pH:7.28, temp:4.9, cond:1.75, turb:8.21, DO:1.23, redox:41.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:25, DTW:60.59, pH:7.27, temp:4.8, cond:1.74, turb:8.02, DO:1.22, redox:40.9

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 60.59                                                                           |
| Milliliters Purged (total)       | 5500                                                                            |
| pH                               | 7.27                                                                            |
| Conductivity (mS/cm)             | 1.74                                                                            |
| Turbidity (NTU)                  | 8.02                                                                            |
| Dissolved Oxygen (mg/L)          | 1.22                                                                            |
| Temperature (Degrees Celsius)    | 4.8                                                                             |
| Redox (ORP mV)                   | 40.9                                                                            |
| parameters                       | @11:25, DTW:60.59, pH:7.27, temp:4.8, cond:1.74, turb:8.02, DO:1.22, redox:40.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 11:25       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 5500        |
| Well Volumes Purged           | 0.62        |

## Sample Information



|               |       |
|---------------|-------|
| Sample Time   | 11:25 |
| Color         | Clear |
| Notable odors | No    |

### Nitrate

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | Nitrate        |
| Container Type       | 125 mL Plastic |
| Number of Containers | 1              |
| Preservative         | None           |

### Well Information

|                          |                                   |
|--------------------------|-----------------------------------|
| Well Location            | On site Plant 2                   |
| Condition of Well        | Good                              |
| Well Locked at Arrival   | Yes                               |
| Well Locked at Departure | Yes                               |
| Comments                 | Didn't meet drawdown requirements |

Signature



Signed 2019-02-27 16:15:17 UTC

## 2019-06-06, MW-16-77, MW-16-77

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-06 13:55:13 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-06 14:33:23 EDT by Christine Gregg   |
| Location                                                                                          | 42.7363755, -84.586274                       |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-06                                   |
| Well Identification                                                                               | MW-16-77                                     |
| Well ID                                                                                           | MW-16-77                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Weather                                                                                           | Sunny, warm                                  |

### Evacuation Details

|                                                                                                                                                                                                                                                           |                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing      |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2                  |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 60.42              |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 74                 |
| Water Column                                                                                                                                                                                                                                              | 13.579999999999998 |
| Gallons in Well                                                                                                                                                                                                                                           | 2.21               |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                    |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow           |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder            |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow           |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 70                 |
| Purge Start                                                                                                                                                                                                                                               | 13:50              |

### @14:00, DTW:73.92, pH:7.08, temp:14.2, cond:2, turb:61.5, DO:0.4, redox:26.6

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Reading Time                  | 14:00                                                                        |
| Rate (mL/min)                 | 200                                                                          |
| Depth to Water (ft)           | 73.92                                                                        |
| Milliliters Purged (total)    | 1000                                                                         |
| pH                            | 7.08                                                                         |
| Conductivity (mS/cm)          | 2                                                                            |
| Turbidity (NTU)               | 61.5                                                                         |
| Dissolved Oxygen (mg/L)       | 0.4                                                                          |
| Temperature (Degrees Celsius) | 14.2                                                                         |
| Redox (ORP mV)                | 26.6                                                                         |
| parameters                    | @14:00, DTW:73.92, pH:7.08, temp:14.2, cond:2, turb:61.5, DO:0.4, redox:26.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:05, DTW:73.92, pH:7.06, temp:14.9, cond:1.98, turb:3.94, DO:0.27, redox:20.9

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:05                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 73.92                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.06                                                                             |
| Conductivity (mS/cm)             | 1.98                                                                             |
| Turbidity (NTU)                  | 3.94                                                                             |
| Dissolved Oxygen (mg/L)          | 0.27                                                                             |
| Temperature (Degrees Celsius)    | 14.9                                                                             |
| Redox (ORP mV)                   | 20.9                                                                             |
| parameters                       | @14:05, DTW:73.92, pH:7.06, temp:14.9, cond:1.98, turb:3.94, DO:0.27, redox:20.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:10, DTW:73.92, pH:7.06, temp:15.5, cond:1.97, turb:3.03, DO:0.25, redox:18.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 73.92                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.06                                                                             |
| Conductivity (mS/cm)             | 1.97                                                                             |
| Turbidity (NTU)                  | 3.03                                                                             |
| Dissolved Oxygen (mg/L)          | 0.25                                                                             |
| Temperature (Degrees Celsius)    | 15.5                                                                             |
| Redox (ORP mV)                   | 18.2                                                                             |
| parameters                       | @14:10, DTW:73.92, pH:7.06, temp:15.5, cond:1.97, turb:3.03, DO:0.25, redox:18.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:15, DTW:73.92, pH:7.07, temp:15.5, cond:1.97, turb:2.52, DO:0.33, redox:14.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 73.92                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.07                                                                             |
| Conductivity (mS/cm)             | 1.97                                                                             |
| Turbidity (NTU)                  | 2.52                                                                             |
| Dissolved Oxygen (mg/L)          | 0.33                                                                             |
| Temperature (Degrees Celsius)    | 15.5                                                                             |
| Redox (ORP mV)                   | 14.6                                                                             |
| parameters                       | @14:15, DTW:73.92, pH:7.07, temp:15.5, cond:1.97, turb:2.52, DO:0.33, redox:14.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:20, DTW:73.92, pH:7.08, temp:16.6, cond:1.97, turb:1.93, DO:0.36, redox:9.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:20                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 73.92                                                                           |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.08                                                                            |
| Conductivity (mS/cm)             | 1.97                                                                            |
| Turbidity (NTU)                  | 1.93                                                                            |
| Dissolved Oxygen (mg/L)          | 0.36                                                                            |
| Temperature (Degrees Celsius)    | 16.6                                                                            |
| Redox (ORP mV)                   | 9.4                                                                             |
| parameters                       | @14:20, DTW:73.92, pH:7.08, temp:16.6, cond:1.97, turb:1.93, DO:0.36, redox:9.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:25, DTW:73.92, pH:7.09, temp:16.8, cond:1.97, turb:0.33, DO:0.35, redox:8.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 73.92                                                                           |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.09                                                                            |
| Conductivity (mS/cm)             | 1.97                                                                            |
| Turbidity (NTU)                  | 0.33                                                                            |
| Dissolved Oxygen (mg/L)          | 0.35                                                                            |
| Temperature (Degrees Celsius)    | 16.8                                                                            |
| Redox (ORP mV)                   | 8.2                                                                             |
| parameters                       | @14:25, DTW:73.92, pH:7.09, temp:16.8, cond:1.97, turb:0.33, DO:0.35, redox:8.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:30, DTW:73.92, pH:7.07, temp:15.6, cond:1.95, turb:0.25, DO:0.33, redox:4.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 73.92 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7.07  |
| Conductivity (mS/cm)             | 1.95  |
| Turbidity (NTU)                  | 0.25  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.33                                                                            |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 15.6                                                                            |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 4.1                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @14:30, DTW:73.92, pH:7.07, temp:15.6, cond:1.95, turb:0.25, DO:0.33, redox:4.1 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                 |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 14:30                                                                           |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                     |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 7000                                                                            |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.84                                                                            |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:40 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of stylized, overlapping loops and curves, resembling the letters 'AL' followed by a flourish.

Signed 2019-06-06 17:57:13 UTC

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## 2019-12-05, MW-16-77

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-05 19:23:10 UTC by Heather Woodrum |
| Updated                                                                                           | 2019-12-05 20:28:30 UTC by Heather Woodrum |
| Location                                                                                          | 42.736403388011, -84.5862642769558         |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Heather Woodrum                            |
| Date                                                                                              | 2019-12-05                                 |
| Well ID                                                                                           | MW-16-77                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cold, overcast                             |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 59.7          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 71            |
| Water Column                                                                                                                                                                                                                                                 | 11.3          |
| Gallons in Well                                                                                                                                                                                                                                              | 1.84          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 68            |
| Purge Start                                                                                                                                                                                                                                                  | 14:35         |

### @14:40, DTW:60.1, pH:7.27, temp:11.5, cond:2.01, turb:16.4, DO:4.14, redox:-63

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 14:40                                                                          |
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 60.1                                                                           |
| pH                            | 7.27                                                                           |
| Conductivity (mS/cm)          | 2.01                                                                           |
| Turbidity (NTU)               | 16.4                                                                           |
| Dissolved Oxygen (mg/L)       | 4.14                                                                           |
| Temperature (Degrees Celsius) | 11.5                                                                           |
| Redox (ORP mV)                | -63                                                                            |
| parameters                    | @14:40, DTW:60.1, pH:7.27, temp:11.5, cond:2.01, turb:16.4, DO:4.14, redox:-63 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:45, DTW:60.1, pH:7.32, temp:11.6, cond:2, turb:15.2, DO:6.01, redox:-54.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:45 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                           |
| Depth to Water (ft)           | 60.1                                                                          |
| pH                            | 7.32                                                                          |
| Conductivity (mS/cm)          | 2                                                                             |
| Turbidity (NTU)               | 15.2                                                                          |
| Dissolved Oxygen (mg/L)       | 6.01                                                                          |
| Temperature (Degrees Celsius) | 11.6                                                                          |
| Redox (ORP mV)                | -54.1                                                                         |
| parameters                    | @14:45, DTW:60.1, pH:7.32, temp:11.6, cond:2, turb:15.2, DO:6.01, redox:-54.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:50, DTW:60.1, pH:7.37, temp:10.8, cond:2, turb:15, DO:6.52, redox:-49.8**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 14:50                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 200                                                                         |
| Depth to Water (ft)              | 60.1                                                                        |
| pH                               | 7.37                                                                        |
| Conductivity (mS/cm)             | 2                                                                           |
| Turbidity (NTU)                  | 15                                                                          |
| Dissolved Oxygen (mg/L)          | 6.52                                                                        |
| Temperature (Degrees Celsius)    | 10.8                                                                        |
| Redox (ORP mV)                   | -49.8                                                                       |
| parameters                       | @14:50, DTW:60.1, pH:7.37, temp:10.8, cond:2, turb:15, DO:6.52, redox:-49.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:55, DTW:60.1, pH:7.39, temp:10.8, cond:2, turb:14.3, DO:6.65, redox:-50.1**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:55                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 60.1                                                                          |
| pH                               | 7.39                                                                          |
| Conductivity (mS/cm)             | 2                                                                             |
| Turbidity (NTU)                  | 14.3                                                                          |
| Dissolved Oxygen (mg/L)          | 6.65                                                                          |
| Temperature (Degrees Celsius)    | 10.8                                                                          |
| Redox (ORP mV)                   | -50.1                                                                         |
| parameters                       | @14:55, DTW:60.1, pH:7.39, temp:10.8, cond:2, turb:14.3, DO:6.65, redox:-50.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:00, DTW:60.1, pH:7.41, temp:10.7, cond:2.02, turb:13.8, DO:6.47, redox:-51.4**

|              |       |
|--------------|-------|
| Reading Time | 15:00 |
|--------------|-------|



|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 60.1                                                                             |
| pH                               | 7.41                                                                             |
| Conductivity (mS/cm)             | 2.02                                                                             |
| Turbidity (NTU)                  | 13.8                                                                             |
| Dissolved Oxygen (mg/L)          | 6.47                                                                             |
| Temperature (Degrees Celsius)    | 10.7                                                                             |
| Redox (ORP mV)                   | -51.4                                                                            |
| parameters                       | @15:00, DTW:60.1, pH:7.41, temp:10.7, cond:2.02, turb:13.8, DO:6.47, redox:-51.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:05, DTW:60.1, pH:7.4, temp:10.7, cond:2.03, turb:13.3, DO:6.54, redox:-53.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:05                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 60.1                                                                            |
| pH                               | 7.4                                                                             |
| Conductivity (mS/cm)             | 2.03                                                                            |
| Turbidity (NTU)                  | 13.3                                                                            |
| Dissolved Oxygen (mg/L)          | 6.54                                                                            |
| Temperature (Degrees Celsius)    | 10.7                                                                            |
| Redox (ORP mV)                   | -53.8                                                                           |
| parameters                       | @15:05, DTW:60.1, pH:7.4, temp:10.7, cond:2.03, turb:13.3, DO:6.54, redox:-53.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 15:05 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:10 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of stylized, overlapping loops and a long, sweeping tail that ends in a small hook.

Signed 2019-12-05 19:24:43 UTC

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## 2019-06-05, MW-16-78, MW-16-78

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-05 09:35:58 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-05 10:26:18 EDT by Christine Gregg   |
| Location                                                                                          | 42.7367955, -84.5839289                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-05                                   |
| Well Identification                                                                               | MW-16-78                                     |
| Well ID                                                                                           | MW-16-78                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Weather                                                                                           | Rainy, warm                                  |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 62.7          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 76.7          |
| Water Column                                                                                                                                                                                                                                              | 14            |
| Gallons in Well                                                                                                                                                                                                                                           | 2.27          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 73            |
| Purge Start                                                                                                                                                                                                                                               | 09:45         |

### @09:55, DTW:65.6, pH:6.74, temp:17, cond:1.92, turb:12.5, DO:0.86, redox:125.8

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 09:55                                                                          |
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 65.6                                                                           |
| Milliliters Purged (total)    | 2000                                                                           |
| pH                            | 6.74                                                                           |
| Conductivity (mS/cm)          | 1.92                                                                           |
| Turbidity (NTU)               | 12.5                                                                           |
| Dissolved Oxygen (mg/L)       | 0.86                                                                           |
| Temperature (Degrees Celsius) | 17                                                                             |
| Redox (ORP mV)                | 125.8                                                                          |
| parameters                    | @09:55, DTW:65.6, pH:6.74, temp:17, cond:1.92, turb:12.5, DO:0.86, redox:125.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:00, DTW:65.6, pH:6.87, temp:16.4, cond:1.92, turb:0.45, DO:0.32, redox:34.2

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.6                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 6.87                                                                            |
| Conductivity (mS/cm)             | 1.92                                                                            |
| Turbidity (NTU)                  | 0.45                                                                            |
| Dissolved Oxygen (mg/L)          | 0.32                                                                            |
| Temperature (Degrees Celsius)    | 16.4                                                                            |
| Redox (ORP mV)                   | 34.2                                                                            |
| parameters                       | @10:00, DTW:65.6, pH:6.87, temp:16.4, cond:1.92, turb:0.45, DO:0.32, redox:34.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:05, DTW:65.6, pH:6.88, temp:16.4, cond:1.92, turb:0.28, DO:0.24, redox:12.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:05                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.6                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 6.88                                                                            |
| Conductivity (mS/cm)             | 1.92                                                                            |
| Turbidity (NTU)                  | 0.28                                                                            |
| Dissolved Oxygen (mg/L)          | 0.24                                                                            |
| Temperature (Degrees Celsius)    | 16.4                                                                            |
| Redox (ORP mV)                   | 12.7                                                                            |
| parameters                       | @10:05, DTW:65.6, pH:6.88, temp:16.4, cond:1.92, turb:0.28, DO:0.24, redox:12.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:10, DTW:65.6, pH:6.88, temp:16.3, cond:1.92, turb:0.28, DO:0.18, redox:2.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 10:10                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 65.6                                                                           |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 6.88                                                                           |
| Conductivity (mS/cm)             | 1.92                                                                           |
| Turbidity (NTU)                  | 0.28                                                                           |
| Dissolved Oxygen (mg/L)          | 0.18                                                                           |
| Temperature (Degrees Celsius)    | 16.3                                                                           |
| Redox (ORP mV)                   | 2.1                                                                            |
| parameters                       | @10:10, DTW:65.6, pH:6.88, temp:16.3, cond:1.92, turb:0.28, DO:0.18, redox:2.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:15, DTW:65.6, pH:6.88, temp:16.4, cond:1.92, turb:0.2, DO:0.16, redox:-27.6

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 65.6                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 6.88                                                                            |
| Conductivity (mS/cm)             | 1.92                                                                            |
| Turbidity (NTU)                  | 0.2                                                                             |
| Dissolved Oxygen (mg/L)          | 0.16                                                                            |
| Temperature (Degrees Celsius)    | 16.4                                                                            |
| Redox (ORP mV)                   | -27.6                                                                           |
| parameters                       | @10:15, DTW:65.6, pH:6.88, temp:16.4, cond:1.92, turb:0.2, DO:0.16, redox:-27.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:20, DTW:65.6, pH:6.88, temp:16.5, cond:1.92, turb:0.18, DO:0.16, redox:-31.4

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.6                                                                             |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 6.88                                                                             |
| Conductivity (mS/cm)             | 1.92                                                                             |
| Turbidity (NTU)                  | 0.18                                                                             |
| Dissolved Oxygen (mg/L)          | 0.16                                                                             |
| Temperature (Degrees Celsius)    | 16.5                                                                             |
| Redox (ORP mV)                   | -31.4                                                                            |
| parameters                       | @10:20, DTW:65.6, pH:6.88, temp:16.5, cond:1.92, turb:0.18, DO:0.16, redox:-31.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:25, DTW:65.6, pH:6.89, temp:16.1, cond:1.92, turb:0.21, DO:0.16, redox:-35.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.6  |
| Milliliters Purged (total)       | 1000  |
| pH                               | 6.89  |
| Conductivity (mS/cm)             | 1.92  |
| Turbidity (NTU)                  | 0.21  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.16                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 16.1                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -35.1                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @10:25, DTW:65.6, pH:6.89, temp:16.1, cond:1.92, turb:0.21, DO:0.16, redox:-35.1 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 10:25                                                                            |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                      |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 7000                                                                             |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.81                                                                             |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:30 |
| Color         | Clear |
| Notable odors | None  |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of two parts. The first part is a stylized 'M' with a small loop at the bottom. The second part is a stylized 'P' followed by a wavy line.

Signed 2019-06-05 13:41:36 UTC

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## 2019-12-04, MW-16-78

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-04 19:03:39 UTC by Heather Woodrum |
| Updated                                                                                           | 2019-12-04 19:47:59 UTC by Heather Woodrum |
| Location                                                                                          | 42.7368529932971, -84.5839538053466        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Heather Woodrum                            |
| Date                                                                                              | 2019-12-04                                 |
| Well ID                                                                                           | MW-16-78                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cold, windy                                |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 62.05         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 73            |
| Water Column                                                                                                                                                                                                                                                 | 10.95         |
| Gallons in Well                                                                                                                                                                                                                                              | 1.78          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 70            |
| Purge Start                                                                                                                                                                                                                                                  | 14:25         |

### @14:30, DTW:62.1, pH:7.03, temp:11.8, cond:1.9, turb:0.02, DO:0.23, redox:-67.6

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 14:30                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 62.1                                                                            |
| pH                            | 7.03                                                                            |
| Conductivity (mS/cm)          | 1.9                                                                             |
| Turbidity (NTU)               | 0.02                                                                            |
| Dissolved Oxygen (mg/L)       | 0.23                                                                            |
| Temperature (Degrees Celsius) | 11.8                                                                            |
| Redox (ORP mV)                | -67.6                                                                           |
| parameters                    | @14:30, DTW:62.1, pH:7.03, temp:11.8, cond:1.9, turb:0.02, DO:0.23, redox:-67.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:35, DTW:62.1, pH:7.02, temp:11.9, cond:1.92, turb:0.02, DO:0.22, redox:-71.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:35 |
| Minutes Elapsed between readings | 5     |



|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 62.1                                                                             |
| pH                            | 7.02                                                                             |
| Conductivity (mS/cm)          | 1.92                                                                             |
| Turbidity (NTU)               | 0.02                                                                             |
| Dissolved Oxygen (mg/L)       | 0.22                                                                             |
| Temperature (Degrees Celsius) | 11.9                                                                             |
| Redox (ORP mV)                | -71.3                                                                            |
| parameters                    | @14:35, DTW:62.1, pH:7.02, temp:11.9, cond:1.92, turb:0.02, DO:0.22, redox:-71.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:40, DTW:62.1, pH:7.02, temp:12.1, cond:1.91, turb:0.02, DO:0.2, redox:-71**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:40                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 62.1                                                                          |
| pH                               | 7.02                                                                          |
| Conductivity (mS/cm)             | 1.91                                                                          |
| Turbidity (NTU)                  | 0.02                                                                          |
| Dissolved Oxygen (mg/L)          | 0.2                                                                           |
| Temperature (Degrees Celsius)    | 12.1                                                                          |
| Redox (ORP mV)                   | -71                                                                           |
| parameters                       | @14:40, DTW:62.1, pH:7.02, temp:12.1, cond:1.91, turb:0.02, DO:0.2, redox:-71 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:45, DTW:62.1, pH:7.02, temp:12, cond:1.91, turb:0.02, DO:0.2, redox:-73.9**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:45                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 62.1                                                                          |
| pH                               | 7.02                                                                          |
| Conductivity (mS/cm)             | 1.91                                                                          |
| Turbidity (NTU)                  | 0.02                                                                          |
| Dissolved Oxygen (mg/L)          | 0.2                                                                           |
| Temperature (Degrees Celsius)    | 12                                                                            |
| Redox (ORP mV)                   | -73.9                                                                         |
| parameters                       | @14:45, DTW:62.1, pH:7.02, temp:12, cond:1.91, turb:0.02, DO:0.2, redox:-73.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 14:45 |
|-----------|-------|

## **Sample Information**

|               |       |
|---------------|-------|
| Sample Time   | 14:50 |
| Color         | Clear |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to be 'M/R' followed by a stylized flourish.

Signed 2019-12-04 19:05:50 UTC

## 2019-06-04, MW-16-79, MW-16-79

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-04 14:27:53 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-04 14:59:18 EDT by Christine Gregg   |
| Location                                                                                          | 42.7369626, -84.5834106                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-04                                   |
| Well Identification                                                                               | MW-16-79                                     |
| Well ID                                                                                           | MW-16-79                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Weather                                                                                           | Overcast, windy                              |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 64.84         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 75.7          |
| Water Column                                                                                                                                                                                                                                              | 10.86         |
| Gallons in Well                                                                                                                                                                                                                                           | 1.76          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 71            |
| Purge Start                                                                                                                                                                                                                                               | 14:25         |

### @14:35, DTW:65.6, pH:7.09, temp:18.3, cond:1.08, turb:33.9, DO:0.73, redox:15.6

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 14:35                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 65.6                                                                            |
| Milliliters Purged (total)    | 2000                                                                            |
| pH                            | 7.09                                                                            |
| Conductivity (mS/cm)          | 1.08                                                                            |
| Turbidity (NTU)               | 33.9                                                                            |
| Dissolved Oxygen (mg/L)       | 0.73                                                                            |
| Temperature (Degrees Celsius) | 18.3                                                                            |
| Redox (ORP mV)                | 15.6                                                                            |
| parameters                    | @14:35, DTW:65.6, pH:7.09, temp:18.3, cond:1.08, turb:33.9, DO:0.73, redox:15.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:40, DTW:65.6, pH:7.1, temp:18.4, cond:1.08, turb:21.1, DO:0.75, redox:25.9

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:40                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 65.6                                                                           |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 7.1                                                                            |
| Conductivity (mS/cm)             | 1.08                                                                           |
| Turbidity (NTU)                  | 21.1                                                                           |
| Dissolved Oxygen (mg/L)          | 0.75                                                                           |
| Temperature (Degrees Celsius)    | 18.4                                                                           |
| Redox (ORP mV)                   | 25.9                                                                           |
| parameters                       | @14:40, DTW:65.6, pH:7.1, temp:18.4, cond:1.08, turb:21.1, DO:0.75, redox:25.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:45, DTW:65.6, pH:7.11, temp:19, cond:1.08, turb:25, DO:0.84, redox:49.9**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 14:45                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 200                                                                         |
| Depth to Water (ft)              | 65.6                                                                        |
| Milliliters Purged (total)       | 1000                                                                        |
| pH                               | 7.11                                                                        |
| Conductivity (mS/cm)             | 1.08                                                                        |
| Turbidity (NTU)                  | 25                                                                          |
| Dissolved Oxygen (mg/L)          | 0.84                                                                        |
| Temperature (Degrees Celsius)    | 19                                                                          |
| Redox (ORP mV)                   | 49.9                                                                        |
| parameters                       | @14:45, DTW:65.6, pH:7.11, temp:19, cond:1.08, turb:25, DO:0.84, redox:49.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:50, DTW:65.6, pH:7.11, temp:19.4, cond:1.09, turb:23, DO:0.82, redox:53.9**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:50                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 65.6                                                                          |
| Milliliters Purged (total)       | 1000                                                                          |
| pH                               | 7.11                                                                          |
| Conductivity (mS/cm)             | 1.09                                                                          |
| Turbidity (NTU)                  | 23                                                                            |
| Dissolved Oxygen (mg/L)          | 0.82                                                                          |
| Temperature (Degrees Celsius)    | 19.4                                                                          |
| Redox (ORP mV)                   | 53.9                                                                          |
| parameters                       | @14:50, DTW:65.6, pH:7.11, temp:19.4, cond:1.09, turb:23, DO:0.82, redox:53.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:55, DTW:65.6, pH:7.12, temp:20, cond:1.1, turb:20.3, DO:0.86, redox:51.5**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 14:55                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 65.6                                                                         |
| Milliliters Purged (total)       | 1000                                                                         |
| pH                               | 7.12                                                                         |
| Conductivity (mS/cm)             | 1.1                                                                          |
| Turbidity (NTU)                  | 20.3                                                                         |
| Dissolved Oxygen (mg/L)          | 0.86                                                                         |
| Temperature (Degrees Celsius)    | 20                                                                           |
| Redox (ORP mV)                   | 51.5                                                                         |
| parameters                       | @14:55, DTW:65.6, pH:7.12, temp:20, cond:1.1, turb:20.3, DO:0.86, redox:51.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 15:00       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 7000        |
| Well Volumes Purged           | 1.05        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:05 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of stylized, cursive letters that appear to read 'R. J. Smith'.

Signed 2019-06-04 18:30:39 UTC

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## 2019-12-04, MW-16-79

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-04 17:46:48 UTC by Heather Woodrum |
| Updated                                                                                           | 2019-12-04 18:39:44 UTC by Heather Woodrum |
| Location                                                                                          | 42.7370948950227, -84.5834522322608        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Heather Woodrum                            |
| Date                                                                                              | 2019-12-04                                 |
| Well ID                                                                                           | MW-16-79                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cold, overcast, windy                      |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 63.6          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 73            |
| Water Column                                                                                                                                                                                                                                                 | 9.4           |
| Gallons in Well                                                                                                                                                                                                                                              | 1.53          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 70            |
| Purge Start                                                                                                                                                                                                                                                  | 13:00         |

### @13:10, DTW:64.7, pH:7.24, temp:11.8, cond:1.19, turb:49.2, DO:0.95, redox:-77.9

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 13:10                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 64.7                                                                             |
| pH                            | 7.24                                                                             |
| Conductivity (mS/cm)          | 1.19                                                                             |
| Turbidity (NTU)               | 49.2                                                                             |
| Dissolved Oxygen (mg/L)       | 0.95                                                                             |
| Temperature (Degrees Celsius) | 11.8                                                                             |
| Redox (ORP mV)                | -77.9                                                                            |
| parameters                    | @13:10, DTW:64.7, pH:7.24, temp:11.8, cond:1.19, turb:49.2, DO:0.95, redox:-77.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:15, DTW:64.7, pH:7.24, temp:10.7, cond:1.19, turb:49.4, DO:1.1, redox:-74.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:15 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 64.7                                                                            |
| pH                            | 7.24                                                                            |
| Conductivity (mS/cm)          | 1.19                                                                            |
| Turbidity (NTU)               | 49.4                                                                            |
| Dissolved Oxygen (mg/L)       | 1.1                                                                             |
| Temperature (Degrees Celsius) | 10.7                                                                            |
| Redox (ORP mV)                | -74.9                                                                           |
| parameters                    | @13:15, DTW:64.7, pH:7.24, temp:10.7, cond:1.19, turb:49.4, DO:1.1, redox:-74.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:20, DTW:64.7, pH:7.24, temp:10.7, cond:1.18, turb:35.6, DO:1.15, redox:-71.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 64.7                                                                             |
| pH                               | 7.24                                                                             |
| Conductivity (mS/cm)             | 1.18                                                                             |
| Turbidity (NTU)                  | 35.6                                                                             |
| Dissolved Oxygen (mg/L)          | 1.15                                                                             |
| Temperature (Degrees Celsius)    | 10.7                                                                             |
| Redox (ORP mV)                   | -71.5                                                                            |
| parameters                       | @13:20, DTW:64.7, pH:7.24, temp:10.7, cond:1.18, turb:35.6, DO:1.15, redox:-71.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:25, DTW:64.7, pH:7.24, temp:10.3, cond:1.19, turb:29.8, DO:1.12, redox:-67.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 64.7                                                                             |
| pH                               | 7.24                                                                             |
| Conductivity (mS/cm)             | 1.19                                                                             |
| Turbidity (NTU)                  | 29.8                                                                             |
| Dissolved Oxygen (mg/L)          | 1.12                                                                             |
| Temperature (Degrees Celsius)    | 10.3                                                                             |
| Redox (ORP mV)                   | -67.3                                                                            |
| parameters                       | @13:25, DTW:64.7, pH:7.24, temp:10.3, cond:1.19, turb:29.8, DO:1.12, redox:-67.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:30, DTW:64.7, pH:7.24, temp:10.2, cond:1.7, turb:27.1, DO:1.12, redox:-66.7**

|              |       |
|--------------|-------|
| Reading Time | 13:30 |
|--------------|-------|



|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 64.7                                                                            |
| pH                               | 7.24                                                                            |
| Conductivity (mS/cm)             | 1.7                                                                             |
| Turbidity (NTU)                  | 27.1                                                                            |
| Dissolved Oxygen (mg/L)          | 1.12                                                                            |
| Temperature (Degrees Celsius)    | 10.2                                                                            |
| Redox (ORP mV)                   | -66.7                                                                           |
| parameters                       | @13:30, DTW:64.7, pH:7.24, temp:10.2, cond:1.7, turb:27.1, DO:1.12, redox:-66.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:35, DTW:64.7, pH:7.24, temp:10.2, cond:1.19, turb:26.3, DO:1.15, redox:-64.9**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 64.7                                                                             |
| pH                               | 7.24                                                                             |
| Conductivity (mS/cm)             | 1.19                                                                             |
| Turbidity (NTU)                  | 26.3                                                                             |
| Dissolved Oxygen (mg/L)          | 1.15                                                                             |
| Temperature (Degrees Celsius)    | 10.2                                                                             |
| Redox (ORP mV)                   | -64.9                                                                            |
| parameters                       | @13:35, DTW:64.7, pH:7.24, temp:10.2, cond:1.19, turb:26.3, DO:1.15, redox:-64.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:64.7, pH:7.24, temp:10.2, cond:1.18, turb:25.5, DO:1.1, redox:-64.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 64.7                                                                            |
| pH                               | 7.24                                                                            |
| Conductivity (mS/cm)             | 1.18                                                                            |
| Turbidity (NTU)                  | 25.5                                                                            |
| Dissolved Oxygen (mg/L)          | 1.1                                                                             |
| Temperature (Degrees Celsius)    | 10.2                                                                            |
| Redox (ORP mV)                   | -64.8                                                                           |
| parameters                       | @13:40, DTW:64.7, pH:7.24, temp:10.2, cond:1.18, turb:25.5, DO:1.1, redox:-64.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 13:40 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:45 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to be 'M. P. S.', is centered on the page.

Signed 2019-12-04 17:48:26 UTC

## 2019-06-12, MW-16-80, MW-16-80

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 14:19:05 EDT by Gary Schafer    |
| Updated                                                                                           | 2019-06-12 15:21:25 EDT by Christine Gregg |
| Location                                                                                          | 42.73923706, -84.58706282                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Gary Schafer                               |
| Date                                                                                              | 2019-06-12                                 |
| Well Identification                                                                               | MW-16-80                                   |
| Well ID                                                                                           | MW-16-80                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Sunny breeze temp 70                       |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 61.78         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 74.2          |
| Water Column                                                                                                                                                                                                                                              | 12.42         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.02          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                               | 14:18         |

### @14:20, DTW:61.78, pH:6.86, temp:14.5, cond:2.66, turb:151, DO:1.36, redox:-47.4

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 14:20                                                                            |
| Rate (mL/min)                 | 150                                                                              |
| Depth to Water (ft)           | 61.78                                                                            |
| pH                            | 6.86                                                                             |
| Conductivity (mS/cm)          | 2.66                                                                             |
| Turbidity (NTU)               | 151                                                                              |
| Dissolved Oxygen (mg/L)       | 1.36                                                                             |
| Temperature (Degrees Celsius) | 14.5                                                                             |
| Redox (ORP mV)                | -47.4                                                                            |
| parameters                    | @14:20, DTW:61.78, pH:6.86, temp:14.5, cond:2.66, turb:151, DO:1.36, redox:-47.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:25, DTW:61.78, pH:6.86, temp:14.8, cond:2.66, turb:124, DO:1.28, redox:-46.4

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:25 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 150                                                                              |
| Depth to Water (ft)           | 61.78                                                                            |
| pH                            | 6.86                                                                             |
| Conductivity (mS/cm)          | 2.66                                                                             |
| Turbidity (NTU)               | 124                                                                              |
| Dissolved Oxygen (mg/L)       | 1.28                                                                             |
| Temperature (Degrees Celsius) | 14.8                                                                             |
| Redox (ORP mV)                | -46.4                                                                            |
| parameters                    | @14:25, DTW:61.78, pH:6.86, temp:14.8, cond:2.66, turb:124, DO:1.28, redox:-46.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:30, DTW:61.78, pH:6.86, temp:14.1, cond:2.71, turb:124, DO:2.69, redox:-35.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 61.78                                                                            |
| pH                               | 6.86                                                                             |
| Conductivity (mS/cm)             | 2.71                                                                             |
| Turbidity (NTU)                  | 124                                                                              |
| Dissolved Oxygen (mg/L)          | 2.69                                                                             |
| Temperature (Degrees Celsius)    | 14.1                                                                             |
| Redox (ORP mV)                   | -35.3                                                                            |
| parameters                       | @14:30, DTW:61.78, pH:6.86, temp:14.1, cond:2.71, turb:124, DO:2.69, redox:-35.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:35, DTW:61.78, pH:6.86, temp:13.6, cond:2.67, turb:69.2, DO:1.01, redox:-45.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 61.78                                                                             |
| pH                               | 6.86                                                                              |
| Conductivity (mS/cm)             | 2.67                                                                              |
| Turbidity (NTU)                  | 69.2                                                                              |
| Dissolved Oxygen (mg/L)          | 1.01                                                                              |
| Temperature (Degrees Celsius)    | 13.6                                                                              |
| Redox (ORP mV)                   | -45.1                                                                             |
| parameters                       | @14:35, DTW:61.78, pH:6.86, temp:13.6, cond:2.67, turb:69.2, DO:1.01, redox:-45.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:40, DTW:61.78, pH:6.87, temp:13.8, cond:2.66, turb:35.4, DO:0.61, redox:-49.1**

|              |       |
|--------------|-------|
| Reading Time | 14:40 |
|--------------|-------|

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 61.78                                                                             |
| pH                               | 6.87                                                                              |
| Conductivity (mS/cm)             | 2.66                                                                              |
| Turbidity (NTU)                  | 35.4                                                                              |
| Dissolved Oxygen (mg/L)          | 0.61                                                                              |
| Temperature (Degrees Celsius)    | 13.8                                                                              |
| Redox (ORP mV)                   | -49.1                                                                             |
| parameters                       | @14:40, DTW:61.78, pH:6.87, temp:13.8, cond:2.66, turb:35.4, DO:0.61, redox:-49.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:45, DTW:61.9, pH:6.87, temp:14.2, cond:2.66, turb:25.5, DO:0.59, redox:-50.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 61.9                                                                             |
| pH                               | 6.87                                                                             |
| Conductivity (mS/cm)             | 2.66                                                                             |
| Turbidity (NTU)                  | 25.5                                                                             |
| Dissolved Oxygen (mg/L)          | 0.59                                                                             |
| Temperature (Degrees Celsius)    | 14.2                                                                             |
| Redox (ORP mV)                   | -50.8                                                                            |
| parameters                       | @14:45, DTW:61.9, pH:6.87, temp:14.2, cond:2.66, turb:25.5, DO:0.59, redox:-50.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:50, DTW:61.9, pH:6.85, temp:13.3, cond:2.66, turb:22.1, DO:0.75, redox:-50.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:50                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 61.9                                                                             |
| pH                               | 6.85                                                                             |
| Conductivity (mS/cm)             | 2.66                                                                             |
| Turbidity (NTU)                  | 22.1                                                                             |
| Dissolved Oxygen (mg/L)          | 0.75                                                                             |
| Temperature (Degrees Celsius)    | 13.3                                                                             |
| Redox (ORP mV)                   | -50.8                                                                            |
| parameters                       | @14:50, DTW:61.9, pH:6.85, temp:13.3, cond:2.66, turb:22.1, DO:0.75, redox:-50.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:55, DTW:61.9, pH:6.86, temp:13.4, cond:2.67, turb:22.5, DO:0.77, redox:-51**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:55                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 150                                                                            |
| Depth to Water (ft)              | 61.9                                                                           |
| pH                               | 6.86                                                                           |
| Conductivity (mS/cm)             | 2.67                                                                           |
| Turbidity (NTU)                  | 22.5                                                                           |
| Dissolved Oxygen (mg/L)          | 0.77                                                                           |
| Temperature (Degrees Celsius)    | 13.4                                                                           |
| Redox (ORP mV)                   | -51                                                                            |
| parameters                       | @14:55, DTW:61.9, pH:6.86, temp:13.4, cond:2.67, turb:22.5, DO:0.77, redox:-51 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:00, DTW:61.9, pH:6.86, temp:13.6, cond:2.67, turb:14.3, DO:0.43, redox:-52.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 61.9                                                                             |
| pH                               | 6.86                                                                             |
| Conductivity (mS/cm)             | 2.67                                                                             |
| Turbidity (NTU)                  | 14.3                                                                             |
| Dissolved Oxygen (mg/L)          | 0.43                                                                             |
| Temperature (Degrees Celsius)    | 13.6                                                                             |
| Redox (ORP mV)                   | -52.7                                                                            |
| parameters                       | @15:00, DTW:61.9, pH:6.86, temp:13.6, cond:2.67, turb:14.3, DO:0.43, redox:-52.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:05, DTW:62, pH:6.86, temp:14, cond:2.66, turb:12.7, DO:0.41, redox:-53.9**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 15:05                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 150                                                                          |
| Depth to Water (ft)              | 62                                                                           |
| pH                               | 6.86                                                                         |
| Conductivity (mS/cm)             | 2.66                                                                         |
| Turbidity (NTU)                  | 12.7                                                                         |
| Dissolved Oxygen (mg/L)          | 0.41                                                                         |
| Temperature (Degrees Celsius)    | 14                                                                           |
| Redox (ORP mV)                   | -53.9                                                                        |
| parameters                       | @15:05, DTW:62, pH:6.86, temp:14, cond:2.66, turb:12.7, DO:0.41, redox:-53.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:10, DTW:62, pH:6.86, temp:13.6, cond:2.67, turb:18.8, DO:0.42, redox:-54.2**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:10                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 150                                                                            |
| Depth to Water (ft)              | 62                                                                             |
| pH                               | 6.86                                                                           |
| Conductivity (mS/cm)             | 2.67                                                                           |
| Turbidity (NTU)                  | 18.8                                                                           |
| Dissolved Oxygen (mg/L)          | 0.42                                                                           |
| Temperature (Degrees Celsius)    | 13.6                                                                           |
| Redox (ORP mV)                   | -54.2                                                                          |
| parameters                       | @15:10, DTW:62, pH:6.86, temp:13.6, cond:2.67, turb:18.8, DO:0.42, redox:-54.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:15, DTW:62, pH:6.86, temp:13.7, cond:2.67, turb:12, DO:0.35, redox:-55.3**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 15:15                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 150                                                                          |
| Depth to Water (ft)              | 62                                                                           |
| pH                               | 6.86                                                                         |
| Conductivity (mS/cm)             | 2.67                                                                         |
| Turbidity (NTU)                  | 12                                                                           |
| Dissolved Oxygen (mg/L)          | 0.35                                                                         |
| Temperature (Degrees Celsius)    | 13.7                                                                         |
| Redox (ORP mV)                   | -55.3                                                                        |
| parameters                       | @15:15, DTW:62, pH:6.86, temp:13.7, cond:2.67, turb:12, DO:0.35, redox:-55.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:20, DTW:62, pH:6.86, temp:14, cond:2.68, turb:14.3, DO:0.32, redox:-56**

|                                  |                                                                            |
|----------------------------------|----------------------------------------------------------------------------|
| Reading Time                     | 15:20                                                                      |
| Minutes Elapsed between readings | 5                                                                          |
| Rate (mL/min)                    | 150                                                                        |
| Depth to Water (ft)              | 62                                                                         |
| pH                               | 6.86                                                                       |
| Conductivity (mS/cm)             | 2.68                                                                       |
| Turbidity (NTU)                  | 14.3                                                                       |
| Dissolved Oxygen (mg/L)          | 0.32                                                                       |
| Temperature (Degrees Celsius)    | 14                                                                         |
| Redox (ORP mV)                   | -56                                                                        |
| parameters                       | @15:20, DTW:62, pH:6.86, temp:14, cond:2.68, turb:14.3, DO:0.32, redox:-56 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 15:21   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 2.5     |
| Well Volumes Purged           | 1.24    |

### Sample Information

|               |        |
|---------------|--------|
| Sample Time   | 15:21  |
| Color         | Clear  |
| Notable odors | Slight |

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW-16-80 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature



Signed 2019-06-12 19:21:24 UTC



## 2019-12-06, MW-16-80

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-06 16:46:16 UTC by Heather Woodrum |
| Updated                                                                                           | 2019-12-06 17:37:31 UTC by Heather Woodrum |
| Location                                                                                          | 42.7394219628002, -84.5872494858546        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Heather Woodrum                            |
| Date                                                                                              | 2019-12-06                                 |
| Well ID                                                                                           | MW-16-80                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cold, windy                                |

## Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 58.2          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 73            |
| Water Column                                                                                                                                                                                                                                                 | 14.8          |
| Gallons in Well                                                                                                                                                                                                                                              | 2.4           |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 69            |
| Purge Start                                                                                                                                                                                                                                                  | 11:50         |

## @12:00, DTW:58.6, pH:6.92, temp:10, cond:2.42, turb:37.6, DO:1.15, redox:-60.4

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 12:00                                                                          |
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 58.6                                                                           |
| pH                            | 6.92                                                                           |
| Conductivity (mS/cm)          | 2.42                                                                           |
| Turbidity (NTU)               | 37.6                                                                           |
| Dissolved Oxygen (mg/L)       | 1.15                                                                           |
| Temperature (Degrees Celsius) | 10                                                                             |
| Redox (ORP mV)                | -60.4                                                                          |
| parameters                    | @12:00, DTW:58.6, pH:6.92, temp:10, cond:2.42, turb:37.6, DO:1.15, redox:-60.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

## @12:05, DTW:58.6, pH:6.9, temp:10.4, cond:2.45, turb:24.5, DO:0.8, redox:-63.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:05 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 58.6                                                                           |
| pH                            | 6.9                                                                            |
| Conductivity (mS/cm)          | 2.45                                                                           |
| Turbidity (NTU)               | 24.5                                                                           |
| Dissolved Oxygen (mg/L)       | 0.8                                                                            |
| Temperature (Degrees Celsius) | 10.4                                                                           |
| Redox (ORP mV)                | -63.7                                                                          |
| parameters                    | @12:05, DTW:58.6, pH:6.9, temp:10.4, cond:2.45, turb:24.5, DO:0.8, redox:-63.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:10, DTW:58.6, pH:6.89, temp:10.8, cond:2.45, turb:18.6, DO:0.83, redox:-64.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 58.6                                                                             |
| pH                               | 6.89                                                                             |
| Conductivity (mS/cm)             | 2.45                                                                             |
| Turbidity (NTU)                  | 18.6                                                                             |
| Dissolved Oxygen (mg/L)          | 0.83                                                                             |
| Temperature (Degrees Celsius)    | 10.8                                                                             |
| Redox (ORP mV)                   | -64.5                                                                            |
| parameters                       | @12:10, DTW:58.6, pH:6.89, temp:10.8, cond:2.45, turb:18.6, DO:0.83, redox:-64.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:15, DTW:58.6, pH:6.88, temp:10.9, cond:2.53, turb:9.57, DO:0.66, redox:-66.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 58.6                                                                             |
| pH                               | 6.88                                                                             |
| Conductivity (mS/cm)             | 2.53                                                                             |
| Turbidity (NTU)                  | 9.57                                                                             |
| Dissolved Oxygen (mg/L)          | 0.66                                                                             |
| Temperature (Degrees Celsius)    | 10.9                                                                             |
| Redox (ORP mV)                   | -66.7                                                                            |
| parameters                       | @12:15, DTW:58.6, pH:6.88, temp:10.9, cond:2.53, turb:9.57, DO:0.66, redox:-66.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:20, DTW:58.6, pH:6.88, temp:10.8, cond:2.57, turb:7.07, DO:0.56, redox:-67**

|              |       |
|--------------|-------|
| Reading Time | 12:20 |
|--------------|-------|

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 58.6                                                                           |
| pH                               | 6.88                                                                           |
| Conductivity (mS/cm)             | 2.57                                                                           |
| Turbidity (NTU)                  | 7.07                                                                           |
| Dissolved Oxygen (mg/L)          | 0.56                                                                           |
| Temperature (Degrees Celsius)    | 10.8                                                                           |
| Redox (ORP mV)                   | -67                                                                            |
| parameters                       | @12:20, DTW:58.6, pH:6.88, temp:10.8, cond:2.57, turb:7.07, DO:0.56, redox:-67 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:25, DTW:58.6, pH:6.88, temp:10.7, cond:2.62, turb:5.37, DO:0.42, redox:-70**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:25                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 58.6                                                                           |
| pH                               | 6.88                                                                           |
| Conductivity (mS/cm)             | 2.62                                                                           |
| Turbidity (NTU)                  | 5.37                                                                           |
| Dissolved Oxygen (mg/L)          | 0.42                                                                           |
| Temperature (Degrees Celsius)    | 10.7                                                                           |
| Redox (ORP mV)                   | -70                                                                            |
| parameters                       | @12:25, DTW:58.6, pH:6.88, temp:10.7, cond:2.62, turb:5.37, DO:0.42, redox:-70 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:30, DTW:58.6, pH:6.88, temp:10.7, cond:2.63, turb:3.7, DO:0.34, redox:-71.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 58.6                                                                            |
| pH                               | 6.88                                                                            |
| Conductivity (mS/cm)             | 2.63                                                                            |
| Turbidity (NTU)                  | 3.7                                                                             |
| Dissolved Oxygen (mg/L)          | 0.34                                                                            |
| Temperature (Degrees Celsius)    | 10.7                                                                            |
| Redox (ORP mV)                   | -71.7                                                                           |
| parameters                       | @12:30, DTW:58.6, pH:6.88, temp:10.7, cond:2.63, turb:3.7, DO:0.34, redox:-71.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:35, DTW:58.6, pH:6.88, temp:10.7, cond:2.63, turb:2.48, DO:0.34, redox:-72.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 58.6                                                                             |
| pH                               | 6.88                                                                             |
| Conductivity (mS/cm)             | 2.63                                                                             |
| Turbidity (NTU)                  | 2.48                                                                             |
| Dissolved Oxygen (mg/L)          | 0.34                                                                             |
| Temperature (Degrees Celsius)    | 10.7                                                                             |
| Redox (ORP mV)                   | -72.1                                                                            |
| parameters                       | @12:35, DTW:58.6, pH:6.88, temp:10.7, cond:2.63, turb:2.48, DO:0.34, redox:-72.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:40, DTW:58.6, pH:6.88, temp:10.7, cond:2.62, turb:2.98, DO:0.33, redox:-72.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 58.6                                                                             |
| pH                               | 6.88                                                                             |
| Conductivity (mS/cm)             | 2.62                                                                             |
| Turbidity (NTU)                  | 2.98                                                                             |
| Dissolved Oxygen (mg/L)          | 0.33                                                                             |
| Temperature (Degrees Celsius)    | 10.7                                                                             |
| Redox (ORP mV)                   | -72.8                                                                            |
| parameters                       | @12:40, DTW:58.6, pH:6.88, temp:10.7, cond:2.62, turb:2.98, DO:0.33, redox:-72.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 12:40 |
|-----------|-------|

### **Sample Information**

|               |       |
|---------------|-------|
| Sample Time   | 12:45 |
| Color         | Clear |
| Notable odors | None  |

### **1,4-Dioxane**

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### **Well Information**

|                        |         |
|------------------------|---------|
| Well Location          | Plant 2 |
| Condition of Well      | Good    |
| Well Locked at Arrival | No      |

Well Locked at Departure

No

Comments

Flush mount well , no bolts

Signature

A handwritten signature in black ink, appearing to be 'WLP' followed by a stylized flourish.

Signed 2019-12-06 16:48:53 UTC

## 2019-02-26, MW-16-81, MW-16-81

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-02-26 12:16:44 EST by Billy Cobern    |
| Updated                                                                                           | 2019-02-26 12:37:25 EST by Christine Gregg |
| Location                                                                                          | 42.73737728, -84.58475034                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-02-26                                 |
| Well Identification                                                                               | MW-16-81                                   |
| Well ID                                                                                           | MW-16-81                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | DUP-01                                     |
| Weather                                                                                           | Cloudy 20's                                |

### Evacuation Details

|                                                                                                                                                                                                                                                                     |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                    | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                            | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                         | 64.74         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                                | 77.3          |
| Water Column                                                                                                                                                                                                                                                        | 12.56         |
| Gallons in Well                                                                                                                                                                                                                                                     | 2.04          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1 \text{ foot}$ ] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                        | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                              | Bladder       |
| Sample Method                                                                                                                                                                                                                                                       | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                            | 74            |
| Purge Start                                                                                                                                                                                                                                                         | 11:40         |

### @11:40, DTW:64.74, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 11:40                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 64.74                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @11:40, DTW:64.74, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:45, DTW:65.05, pH:6.96, temp:7.3, cond:2.31, turb:23.9, DO:4.29, redox:33.4

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 65.05 |
| Milliliters Purged (total)       | 500   |

|                               |      |
|-------------------------------|------|
| pH                            | 6.96 |
| Conductivity (mS/cm)          | 2.31 |
| Turbidity (NTU)               | 23.9 |
| Dissolved Oxygen (mg/L)       | 4.29 |
| Temperature (Degrees Celsius) | 7.3  |
| Redox (ORP mV)                | 33.4 |

parameters @11:45, DTW:65.05, pH:6.96, temp:7.3, cond:2.31, turb:23.9, DO:4.29, redox:33.4

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:50, DTW:65.05, pH:6.97, temp:7.3, cond:2.32, turb:31.3, DO:3.81, redox:32.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 65.05 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 6.97  |
| Conductivity (mS/cm)             | 2.32  |
| Turbidity (NTU)                  | 31.3  |
| Dissolved Oxygen (mg/L)          | 3.81  |
| Temperature (Degrees Celsius)    | 7.3   |
| Redox (ORP mV)                   | 32.2  |

parameters @11:50, DTW:65.05, pH:6.97, temp:7.3, cond:2.32, turb:31.3, DO:3.81, redox:32.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:55, DTW:65.05, pH:6.97, temp:7.2, cond:2.33, turb:25.2, DO:4.57, redox:31**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 65.05 |
| Milliliters Purged (total)       | 1500  |
| pH                               | 6.97  |
| Conductivity (mS/cm)             | 2.33  |
| Turbidity (NTU)                  | 25.2  |
| Dissolved Oxygen (mg/L)          | 4.57  |
| Temperature (Degrees Celsius)    | 7.2   |
| Redox (ORP mV)                   | 31    |

parameters @11:55, DTW:65.05, pH:6.97, temp:7.2, cond:2.33, turb:25.2, DO:4.57, redox:31

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:00, DTW:65.05, pH:6.97, temp:7.2, cond:2.33, turb:15.9, DO:4.36, redox:30**

|              |       |
|--------------|-------|
| Reading Time | 12:00 |
|--------------|-------|

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 65.05                                                                         |
| Milliliters Purged (total)       | 2000                                                                          |
| pH                               | 6.97                                                                          |
| Conductivity (mS/cm)             | 2.33                                                                          |
| Turbidity (NTU)                  | 15.9                                                                          |
| Dissolved Oxygen (mg/L)          | 4.36                                                                          |
| Temperature (Degrees Celsius)    | 7.2                                                                           |
| Redox (ORP mV)                   | 30                                                                            |
| parameters                       | @12:00, DTW:65.05, pH:6.97, temp:7.2, cond:2.33, turb:15.9, DO:4.36, redox:30 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:05, DTW:65.05, pH:6.97, temp:7.3, cond:2.34, turb:16.1, DO:4.23, redox:29**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 12:05                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 65.05                                                                         |
| Milliliters Purged (total)       | 2500                                                                          |
| pH                               | 6.97                                                                          |
| Conductivity (mS/cm)             | 2.34                                                                          |
| Turbidity (NTU)                  | 16.1                                                                          |
| Dissolved Oxygen (mg/L)          | 4.23                                                                          |
| Temperature (Degrees Celsius)    | 7.3                                                                           |
| Redox (ORP mV)                   | 29                                                                            |
| parameters                       | @12:05, DTW:65.05, pH:6.97, temp:7.3, cond:2.34, turb:16.1, DO:4.23, redox:29 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:10, DTW:65.05, pH:6.97, temp:7.4, cond:2.34, turb:11.4, DO:4.16, redox:28.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:10                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 65.05                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 6.97                                                                            |
| Conductivity (mS/cm)             | 2.34                                                                            |
| Turbidity (NTU)                  | 11.4                                                                            |
| Dissolved Oxygen (mg/L)          | 4.16                                                                            |
| Temperature (Degrees Celsius)    | 7.4                                                                             |
| Redox (ORP mV)                   | 28.1                                                                            |
| parameters                       | @12:10, DTW:65.05, pH:6.97, temp:7.4, cond:2.34, turb:11.4, DO:4.16, redox:28.1 |



Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:15, DTW:65.05, pH:6.97, temp:7.5, cond:2.35, turb:9.03, DO:4.15, redox:27.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 65.05                                                                           |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 6.97                                                                            |
| Conductivity (mS/cm)             | 2.35                                                                            |
| Turbidity (NTU)                  | 9.03                                                                            |
| Dissolved Oxygen (mg/L)          | 4.15                                                                            |
| Temperature (Degrees Celsius)    | 7.5                                                                             |
| Redox (ORP mV)                   | 27.2                                                                            |
| parameters                       | @12:15, DTW:65.05, pH:6.97, temp:7.5, cond:2.35, turb:9.03, DO:4.15, redox:27.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:20, DTW:65.05, pH:6.97, temp:7.5, cond:2.36, turb:9.26, DO:4.12, redox:26.6**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:20                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 65.05                                                                           |
| Milliliters Purged (total)       | 4000                                                                            |
| pH                               | 6.97                                                                            |
| Conductivity (mS/cm)             | 2.36                                                                            |
| Turbidity (NTU)                  | 9.26                                                                            |
| Dissolved Oxygen (mg/L)          | 4.12                                                                            |
| Temperature (Degrees Celsius)    | 7.5                                                                             |
| Redox (ORP mV)                   | 26.6                                                                            |
| parameters                       | @12:20, DTW:65.05, pH:6.97, temp:7.5, cond:2.36, turb:9.26, DO:4.12, redox:26.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:25, DTW:65.05, pH:6.97, temp:7.4, cond:2.36, turb:8.59, DO:4.14, redox:25.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 65.05 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.97  |
| Conductivity (mS/cm)             | 2.36  |
| Turbidity (NTU)                  | 8.59  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 4.14                                                                            |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 7.4                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 25.9                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @12:25, DTW:65.05, pH:6.97, temp:7.4, cond:2.36, turb:8.59, DO:4.14, redox:25.9 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                 |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 12:25                                                                           |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                     |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 4500                                                                            |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.58                                                                            |

### Sample Information

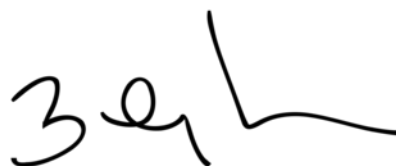
|               |       |
|---------------|-------|
| Sample Time   | 12:25 |
| Color         | Clear |
| Notable odors | No    |

### 1,4 Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4 Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 6           |
| Preservative         | HCL         |

### Well Information

|                          |                 |
|--------------------------|-----------------|
| Well Location            | On site Plant 2 |
| Condition of Well        | Good            |
| Well Locked at Arrival   | Yes             |
| Well Locked at Departure | Yes             |
| Signature                |                 |



Signed 2019-02-26 17:35:56 UTC

## 2019-06-13, MW-16-81, MW-16-81

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-13 10:07:40 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-13 11:21:10 EDT by Christine Gregg |
| Location                                                                                          | 42.73740268, -84.58479418                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-13                                 |
| Well Identification                                                                               | MW-16-81                                   |
| Well ID                                                                                           | MW-16-81                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Cloudy, 60F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 63.88         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 77.3          |
| Water Column                                                                                                                                                                                                                                           | 13.42         |
| Gallons in Well                                                                                                                                                                                                                                        | 2.18          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Bladder       |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                            | 10:15         |

### @10:20, DTW:64.66, pH:6.95, temp:14.4, cond:1.55, turb:78.4, DO:0.98, redox:-60.9

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 10:20                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 64.66                                                                             |
| Milliliters Purged (total)    | 1000                                                                              |
| pH                            | 6.95                                                                              |
| Conductivity (mS/cm)          | 1.55                                                                              |
| Turbidity (NTU)               | 78.4                                                                              |
| Dissolved Oxygen (mg/L)       | 0.98                                                                              |
| Temperature (Degrees Celsius) | 14.4                                                                              |
| Redox (ORP mV)                | -60.9                                                                             |
| parameters                    | @10:20, DTW:64.66, pH:6.95, temp:14.4, cond:1.55, turb:78.4, DO:0.98, redox:-60.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:25, DTW:64.79, pH:6.95, temp:14.3, cond:1.55, turb:26.8, DO:0.76, redox:-71.9

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:25                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 64.79                                                                             |
| Milliliters Purged (total)       | 2000                                                                              |
| pH                               | 6.95                                                                              |
| Conductivity (mS/cm)             | 1.55                                                                              |
| Turbidity (NTU)                  | 26.8                                                                              |
| Dissolved Oxygen (mg/L)          | 0.76                                                                              |
| Temperature (Degrees Celsius)    | 14.3                                                                              |
| Redox (ORP mV)                   | -71.9                                                                             |
| parameters                       | @10:25, DTW:64.79, pH:6.95, temp:14.3, cond:1.55, turb:26.8, DO:0.76, redox:-71.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:30, DTW:64.88, pH:6.95, temp:14.4, cond:1.55, turb:12.5, DO:0.49, redox:-72.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:30                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 64.88                                                                             |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 6.95                                                                              |
| Conductivity (mS/cm)             | 1.55                                                                              |
| Turbidity (NTU)                  | 12.5                                                                              |
| Dissolved Oxygen (mg/L)          | 0.49                                                                              |
| Temperature (Degrees Celsius)    | 14.4                                                                              |
| Redox (ORP mV)                   | -72.2                                                                             |
| parameters                       | @10:30, DTW:64.88, pH:6.95, temp:14.4, cond:1.55, turb:12.5, DO:0.49, redox:-72.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:35, DTW:64.88, pH:6.96, temp:14.4, cond:1.56, turb:7.94, DO:0.31, redox:-74.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 64.88                                                                             |
| Milliliters Purged (total)       | 4000                                                                              |
| pH                               | 6.96                                                                              |
| Conductivity (mS/cm)             | 1.56                                                                              |
| Turbidity (NTU)                  | 7.94                                                                              |
| Dissolved Oxygen (mg/L)          | 0.31                                                                              |
| Temperature (Degrees Celsius)    | 14.4                                                                              |
| Redox (ORP mV)                   | -74.4                                                                             |
| parameters                       | @10:35, DTW:64.88, pH:6.96, temp:14.4, cond:1.56, turb:7.94, DO:0.31, redox:-74.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:40, DTW:64.88, pH:6.97, temp:14.3, cond:1.56, turb:5.53, DO:0.28, redox:-77.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:40                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 64.88                                                                             |
| Milliliters Purged (total)       | 5000                                                                              |
| pH                               | 6.97                                                                              |
| Conductivity (mS/cm)             | 1.56                                                                              |
| Turbidity (NTU)                  | 5.53                                                                              |
| Dissolved Oxygen (mg/L)          | 0.28                                                                              |
| Temperature (Degrees Celsius)    | 14.3                                                                              |
| Redox (ORP mV)                   | -77.4                                                                             |
| parameters                       | @10:40, DTW:64.88, pH:6.97, temp:14.3, cond:1.56, turb:5.53, DO:0.28, redox:-77.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:45, DTW:64.88, pH:6.97, temp:14.3, cond:1.56, turb:3.73, DO:0.27, redox:-77.6**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:45                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 64.88                                                                             |
| Milliliters Purged (total)       | 6000                                                                              |
| pH                               | 6.97                                                                              |
| Conductivity (mS/cm)             | 1.56                                                                              |
| Turbidity (NTU)                  | 3.73                                                                              |
| Dissolved Oxygen (mg/L)          | 0.27                                                                              |
| Temperature (Degrees Celsius)    | 14.3                                                                              |
| Redox (ORP mV)                   | -77.6                                                                             |
| parameters                       | @10:45, DTW:64.88, pH:6.97, temp:14.3, cond:1.56, turb:3.73, DO:0.27, redox:-77.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 10:55 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:50 |
| Color         | Clear |
| Notable odors | None  |

## VOCs

|                     |            |
|---------------------|------------|
| Constituent Sampled | VOCs       |
| Container Type      | 40 mL Vial |

|                      |     |
|----------------------|-----|
| Number of Containers | 3   |
| Preservative         | HCL |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to be 'Amal' followed by a stylized flourish.

Signed 2019-06-13 14:09:44 UTC

## 2019-12-06, MW-16-81

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-06 15:47:34 UTC by Gary Schafer |
| Updated                                                                                           | 2019-12-06 20:15:24 UTC by Gary Schafer |
| Location                                                                                          | 42.7375073684777, -84.5848673489732     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-12-06                              |
| Well ID                                                                                           | MW-16-81                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Overcast snowing temp 35                |

## Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 63.98         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 77.22         |
| Water Column                                                                                                                                                                                                                                                 | 13.24         |
| Gallons in Well                                                                                                                                                                                                                                              | 2.15          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 65.31         |
| Purge Start                                                                                                                                                                                                                                                  | 10:48         |

## @10:50, DTW:64.55, pH:7.02, temp:12.9, cond:1824, turb:545, DO:0.38, redox:-77.9

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 10:50                                                                            |
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 64.55                                                                            |
| pH                            | 7.02                                                                             |
| Conductivity (mS/cm)          | 1824                                                                             |
| Turbidity (NTU)               | 545                                                                              |
| Dissolved Oxygen (mg/L)       | 0.38                                                                             |
| Temperature (Degrees Celsius) | 12.9                                                                             |
| Redox (ORP mV)                | -77.9                                                                            |
| parameters                    | @10:50, DTW:64.55, pH:7.02, temp:12.9, cond:1824, turb:545, DO:0.38, redox:-77.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

## @10:55, DTW:64.55, pH:7.02, temp:13, cond:1821, turb:212, DO:0.35, redox:-78.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:55 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                            |
| Depth to Water (ft)           | 64.55                                                                          |
| pH                            | 7.02                                                                           |
| Conductivity (mS/cm)          | 1821                                                                           |
| Turbidity (NTU)               | 212                                                                            |
| Dissolved Oxygen (mg/L)       | 0.35                                                                           |
| Temperature (Degrees Celsius) | 13                                                                             |
| Redox (ORP mV)                | -78.1                                                                          |
| parameters                    | @10:55, DTW:64.55, pH:7.02, temp:13, cond:1821, turb:212, DO:0.35, redox:-78.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:00, DTW:64.8, pH:7.01, temp:13.1, cond:1798, turb:157, DO:0.33, redox:-71.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 64.8                                                                            |
| pH                               | 7.01                                                                            |
| Conductivity (mS/cm)             | 1798                                                                            |
| Turbidity (NTU)                  | 157                                                                             |
| Dissolved Oxygen (mg/L)          | 0.33                                                                            |
| Temperature (Degrees Celsius)    | 13.1                                                                            |
| Redox (ORP mV)                   | -71.1                                                                           |
| parameters                       | @11:00, DTW:64.8, pH:7.01, temp:13.1, cond:1798, turb:157, DO:0.33, redox:-71.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:05, DTW:65, pH:7, temp:13.4, cond:1804, turb:49.2, DO:0.3, redox:-77**

|                                  |                                                                          |
|----------------------------------|--------------------------------------------------------------------------|
| Reading Time                     | 11:05                                                                    |
| Minutes Elapsed between readings | 5                                                                        |
| Rate (mL/min)                    | 100                                                                      |
| Depth to Water (ft)              | 65                                                                       |
| pH                               | 7                                                                        |
| Conductivity (mS/cm)             | 1804                                                                     |
| Turbidity (NTU)                  | 49.2                                                                     |
| Dissolved Oxygen (mg/L)          | 0.3                                                                      |
| Temperature (Degrees Celsius)    | 13.4                                                                     |
| Redox (ORP mV)                   | -77                                                                      |
| parameters                       | @11:05, DTW:65, pH:7, temp:13.4, cond:1804, turb:49.2, DO:0.3, redox:-77 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:10, DTW:65.17, pH:7.01, temp:13.4, cond:1809, turb:21.5, DO:0.22, redox:-80.9**

|              |       |
|--------------|-------|
| Reading Time | 11:10 |
|--------------|-------|



|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.17                                                                             |
| pH                               | 7.01                                                                              |
| Conductivity (mS/cm)             | 1809                                                                              |
| Turbidity (NTU)                  | 21.5                                                                              |
| Dissolved Oxygen (mg/L)          | 0.22                                                                              |
| Temperature (Degrees Celsius)    | 13.4                                                                              |
| Redox (ORP mV)                   | -80.9                                                                             |
| parameters                       | @11:10, DTW:65.17, pH:7.01, temp:13.4, cond:1809, turb:21.5, DO:0.22, redox:-80.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:15, DTW:65.17, pH:7.01, temp:13.5, cond:1807, turb:12.2, DO:0.19, redox:-82.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.17                                                                             |
| pH                               | 7.01                                                                              |
| Conductivity (mS/cm)             | 1807                                                                              |
| Turbidity (NTU)                  | 12.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.19                                                                              |
| Temperature (Degrees Celsius)    | 13.5                                                                              |
| Redox (ORP mV)                   | -82.2                                                                             |
| parameters                       | @11:15, DTW:65.17, pH:7.01, temp:13.5, cond:1807, turb:12.2, DO:0.19, redox:-82.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:20, DTW:65.31, pH:7.02, temp:13.5, cond:1814, turb:8.84, DO:0.17, redox:-83.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.31                                                                             |
| pH                               | 7.02                                                                              |
| Conductivity (mS/cm)             | 1814                                                                              |
| Turbidity (NTU)                  | 8.84                                                                              |
| Dissolved Oxygen (mg/L)          | 0.17                                                                              |
| Temperature (Degrees Celsius)    | 13.5                                                                              |
| Redox (ORP mV)                   | -83.4                                                                             |
| parameters                       | @11:20, DTW:65.31, pH:7.02, temp:13.5, cond:1814, turb:8.84, DO:0.17, redox:-83.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:25, DTW:65.31, pH:7.02, temp:13.4, cond:1810, turb:6.3, DO:0.17, redox:-85**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 65.31                                                                          |
| pH                               | 7.02                                                                           |
| Conductivity (mS/cm)             | 1810                                                                           |
| Turbidity (NTU)                  | 6.3                                                                            |
| Dissolved Oxygen (mg/L)          | 0.17                                                                           |
| Temperature (Degrees Celsius)    | 13.4                                                                           |
| Redox (ORP mV)                   | -85                                                                            |
| parameters                       | @11:25, DTW:65.31, pH:7.02, temp:13.4, cond:1810, turb:6.3, DO:0.17, redox:-85 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:30, DTW:65.31, pH:7.02, temp:13.3, cond:1818, turb:4.96, DO:0.16, redox:-87.2

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:30                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 65.31                                                                             |
| pH                               | 7.02                                                                              |
| Conductivity (mS/cm)             | 1818                                                                              |
| Turbidity (NTU)                  | 4.96                                                                              |
| Dissolved Oxygen (mg/L)          | 0.16                                                                              |
| Temperature (Degrees Celsius)    | 13.3                                                                              |
| Redox (ORP mV)                   | -87.2                                                                             |
| parameters                       | @11:30, DTW:65.31, pH:7.02, temp:13.3, cond:1818, turb:4.96, DO:0.16, redox:-87.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 11:32   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 3.5     |
| Well Volumes Purged           | 1.63    |

### Sample Information

|               |                  |
|---------------|------------------|
| Sample Time   | 11:31            |
| Color         | Slight turbidity |
| Notable odors | Slight odor      |

### Well Information

|                          |                                      |
|--------------------------|--------------------------------------|
| Well Location            | MW-16-81                             |
| Condition of Well        | Good                                 |
| Well Locked at Arrival   | Yes                                  |
| Well Locked at Departure | Yes                                  |
| Comments                 | This well was sampled for MS and MSD |

Signature

Hany  
Schulze

Signed 2019-12-06 16:52:04 UTC

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## 2019-02-26, MW-16-82, MW-16-82

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-02-26 14:36:38 EST by Billy Cobern    |
| Updated                                                                                           | 2019-02-26 15:04:58 EST by Christine Gregg |
| Location                                                                                          | 42.73807461, -84.58495938                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-02-26                                 |
| Well Identification                                                                               | MW-16-82                                   |
| Well ID                                                                                           | MW-16-82                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy 20's                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 65.06         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 77.15         |
| Water Column                                                                                                                                                                                                                                              | 12.09         |
| Gallons in Well                                                                                                                                                                                                                                           | 1.96          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 74            |
| Purge Start                                                                                                                                                                                                                                               | 14:40         |

### @14:40, DTW:65.06, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 14:40                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 65.06                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @14:40, DTW:65.06, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:45, DTW:65.76, pH:7.26, temp:8.9, cond:1.08, turb:31.1, DO:1.08, redox:-5.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 65.76 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.26  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.08                                                                            |
| Turbidity (NTU)               | 31.1                                                                            |
| Dissolved Oxygen (mg/L)       | 1.08                                                                            |
| Temperature (Degrees Celsius) | 8.9                                                                             |
| Redox (ORP mV)                | -5.9                                                                            |
| parameters                    | @14:45, DTW:65.76, pH:7.26, temp:8.9, cond:1.08, turb:31.1, DO:1.08, redox:-5.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:50, DTW:65.56, pH:7.26, temp:9, cond:1.08, turb:15.8, DO:1.09, redox:-7.4**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:50                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 65.56                                                                         |
| Milliliters Purged (total)       | 1000                                                                          |
| pH                               | 7.26                                                                          |
| Conductivity (mS/cm)             | 1.08                                                                          |
| Turbidity (NTU)                  | 15.8                                                                          |
| Dissolved Oxygen (mg/L)          | 1.09                                                                          |
| Temperature (Degrees Celsius)    | 9                                                                             |
| Redox (ORP mV)                   | -7.4                                                                          |
| parameters                       | @14:50, DTW:65.56, pH:7.26, temp:9, cond:1.08, turb:15.8, DO:1.09, redox:-7.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:55, DTW:65.45, pH:7.26, temp:9, cond:1.09, turb:12.2, DO:1.07, redox:-8.2**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:55                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 65.45                                                                         |
| Milliliters Purged (total)       | 1500                                                                          |
| pH                               | 7.26                                                                          |
| Conductivity (mS/cm)             | 1.09                                                                          |
| Turbidity (NTU)                  | 12.2                                                                          |
| Dissolved Oxygen (mg/L)          | 1.07                                                                          |
| Temperature (Degrees Celsius)    | 9                                                                             |
| Redox (ORP mV)                   | -8.2                                                                          |
| parameters                       | @14:55, DTW:65.45, pH:7.26, temp:9, cond:1.09, turb:12.2, DO:1.07, redox:-8.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@15:00, DTW:65.39, pH:7.26, temp:9.1, cond:1.09, turb:10.3, DO:1.11, redox:-9.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:00 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                             |
| Depth to Water (ft)           | 65.39                                                                           |
| Milliliters Purged (total)    | 2000                                                                            |
| pH                            | 7.26                                                                            |
| Conductivity (mS/cm)          | 1.09                                                                            |
| Turbidity (NTU)               | 10.3                                                                            |
| Dissolved Oxygen (mg/L)       | 1.11                                                                            |
| Temperature (Degrees Celsius) | 9.1                                                                             |
| Redox (ORP mV)                | -9.1                                                                            |
| parameters                    | @15:00, DTW:65.39, pH:7.26, temp:9.1, cond:1.09, turb:10.3, DO:1.11, redox:-9.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:05, DTW:65.37, pH:7.27, temp:9.1, cond:1.08, turb:9.09, DO:1.12, redox:-10**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:05                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 65.37                                                                          |
| Milliliters Purged (total)       | 2500                                                                           |
| pH                               | 7.27                                                                           |
| Conductivity (mS/cm)             | 1.08                                                                           |
| Turbidity (NTU)                  | 9.09                                                                           |
| Dissolved Oxygen (mg/L)          | 1.12                                                                           |
| Temperature (Degrees Celsius)    | 9.1                                                                            |
| Redox (ORP mV)                   | -10                                                                            |
| parameters                       | @15:05, DTW:65.37, pH:7.27, temp:9.1, cond:1.08, turb:9.09, DO:1.12, redox:-10 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:10, DTW:65.37, pH:7.27, temp:9, cond:1.08, turb:8.69, DO:1.1, redox:-11**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 15:10                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 100                                                                         |
| Depth to Water (ft)              | 65.37                                                                       |
| Milliliters Purged (total)       | 3000                                                                        |
| pH                               | 7.27                                                                        |
| Conductivity (mS/cm)             | 1.08                                                                        |
| Turbidity (NTU)                  | 8.69                                                                        |
| Dissolved Oxygen (mg/L)          | 1.1                                                                         |
| Temperature (Degrees Celsius)    | 9                                                                           |
| Redox (ORP mV)                   | -11                                                                         |
| parameters                       | @15:10, DTW:65.37, pH:7.27, temp:9, cond:1.08, turb:8.69, DO:1.1, redox:-11 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:15, DTW:65.37, pH:7.27, temp:9, cond:1.08, turb:8.34, DO:1.1, redox:-11.7**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 15:15                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 65.37                                                                         |
| Milliliters Purged (total)       | 3500                                                                          |
| pH                               | 7.27                                                                          |
| Conductivity (mS/cm)             | 1.08                                                                          |
| Turbidity (NTU)                  | 8.34                                                                          |
| Dissolved Oxygen (mg/L)          | 1.1                                                                           |
| Temperature (Degrees Celsius)    | 9                                                                             |
| Redox (ORP mV)                   | -11.7                                                                         |
| parameters                       | @15:15, DTW:65.37, pH:7.27, temp:9, cond:1.08, turb:8.34, DO:1.1, redox:-11.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 15:15       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 3500        |
| Well Volumes Purged           | 0.47        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:15 |
| Color         | Clear |
| Notable odors | No    |

## 1,4 Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4 Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |            |
|--------------------------|------------|
| Well Location            | On Plant 2 |
| Condition of Well        | Good       |
| Well Locked at Arrival   | Yes        |
| Well Locked at Departure | Yes        |

Signature

A handwritten signature in black ink, appearing to be '304/L' followed by a horizontal line.

Signed 2019-02-26 19:38:39 UTC

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## 2019-06-07, MW-16-82, MW-16-82

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-07 09:11:06 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-07 10:44:11 EDT by Christine Gregg   |
| Location                                                                                          | 42.738041, -84.5851729                       |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-07                                   |
| Well Identification                                                                               | MW-16-82                                     |
| Well ID                                                                                           | MW-16-82                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Weather                                                                                           | Sunny, warm                                  |

### Evacuation Details

|                                                                                                                                                                                                                                                                       |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                      | Top of Casing     |
| Casing Diameter (inches)                                                                                                                                                                                                                                              | 2                 |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                           | 66.2              |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                                  | 75                |
| Water Column                                                                                                                                                                                                                                                          | 8.799999999999997 |
| Gallons in Well                                                                                                                                                                                                                                                       | 1.43              |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1 \text{ foot}$ ] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                   |
| Purge Method                                                                                                                                                                                                                                                          | Low-Flow          |
| Type of Equipment used                                                                                                                                                                                                                                                | Bladder           |
| Sample Method                                                                                                                                                                                                                                                         | Low-Flow          |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                              | 71                |
| Purge Start                                                                                                                                                                                                                                                           | 09:20             |

### @09:30, DTW:73.92, pH:7.07, temp:17.2, cond:1.2, turb:0.02, DO:0.67, redox:109.9

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 09:30                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 73.92                                                                            |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 7.07                                                                             |
| Conductivity (mS/cm)          | 1.2                                                                              |
| Turbidity (NTU)               | 0.02                                                                             |
| Dissolved Oxygen (mg/L)       | 0.67                                                                             |
| Temperature (Degrees Celsius) | 17.2                                                                             |
| Redox (ORP mV)                | 109.9                                                                            |
| parameters                    | @09:30, DTW:73.92, pH:7.07, temp:17.2, cond:1.2, turb:0.02, DO:0.67, redox:109.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:35, DTW:73.92, pH:7.02, temp:17.3, cond:1.22, turb:0.02, DO:0.36, redox:88

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 09:35                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 73.92                                                                          |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 7.02                                                                           |
| Conductivity (mS/cm)             | 1.22                                                                           |
| Turbidity (NTU)                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)          | 0.36                                                                           |
| Temperature (Degrees Celsius)    | 17.3                                                                           |
| Redox (ORP mV)                   | 88                                                                             |
| parameters                       | @09:35, DTW:73.92, pH:7.02, temp:17.3, cond:1.22, turb:0.02, DO:0.36, redox:88 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:40, DTW:73.92, pH:7.01, temp:17.5, cond:1.24, turb:0.02, DO:0.37, redox:66.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 73.92                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.01                                                                             |
| Conductivity (mS/cm)             | 1.24                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.37                                                                             |
| Temperature (Degrees Celsius)    | 17.5                                                                             |
| Redox (ORP mV)                   | 66.8                                                                             |
| parameters                       | @09:40, DTW:73.92, pH:7.01, temp:17.5, cond:1.24, turb:0.02, DO:0.37, redox:66.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:45, DTW:73.92, pH:7.02, temp:18.3, cond:1.24, turb:0.02, DO:0.72, redox:44**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 73.92                                                                          |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 7.02                                                                           |
| Conductivity (mS/cm)             | 1.24                                                                           |
| Turbidity (NTU)                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)          | 0.72                                                                           |
| Temperature (Degrees Celsius)    | 18.3                                                                           |
| Redox (ORP mV)                   | 44                                                                             |
| parameters                       | @09:45, DTW:73.92, pH:7.02, temp:18.3, cond:1.24, turb:0.02, DO:0.72, redox:44 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:10, DTW:73.92, pH:7.05, temp:16.8, cond:1.24, turb:0.02, DO:0.82, redox:-22.8**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:10                                                                             |
| Minutes Elapsed between readings | 25                                                                                |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 73.92                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 7.05                                                                              |
| Conductivity (mS/cm)             | 1.24                                                                              |
| Turbidity (NTU)                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)          | 0.82                                                                              |
| Temperature (Degrees Celsius)    | 16.8                                                                              |
| Redox (ORP mV)                   | -22.8                                                                             |
| parameters                       | @10:10, DTW:73.92, pH:7.05, temp:16.8, cond:1.24, turb:0.02, DO:0.82, redox:-22.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:15, DTW:73.92, pH:7.04, temp:17.7, cond:1.24, turb:0.02, DO:0.6, redox:-31.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 73.92                                                                            |
| Milliliters Purged (total)       | 200                                                                              |
| pH                               | 7.04                                                                             |
| Conductivity (mS/cm)             | 1.24                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.6                                                                              |
| Temperature (Degrees Celsius)    | 17.7                                                                             |
| Redox (ORP mV)                   | -31.5                                                                            |
| parameters                       | @10:15, DTW:73.92, pH:7.04, temp:17.7, cond:1.24, turb:0.02, DO:0.6, redox:-31.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:20, DTW:73.92, pH:7.04, temp:17.5, cond:1.24, turb:0.02, DO:0.48, redox:-42.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 73.92 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7.04  |
| Conductivity (mS/cm)             | 1.24  |
| Turbidity (NTU)                  | 0.02  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.48                                                                              |
| Temperature (Degrees Celsius) | 17.5                                                                              |
| Redox (ORP mV)                | -42.2                                                                             |
| parameters                    | @10:20, DTW:73.92, pH:7.04, temp:17.5, cond:1.24, turb:0.02, DO:0.48, redox:-42.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:25, DTW:73.92, pH:7.03, temp:17.2, cond:1.23, turb:0.02, DO:0.35, redox:-48.8**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:25                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 73.92                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 7.03                                                                              |
| Conductivity (mS/cm)             | 1.23                                                                              |
| Turbidity (NTU)                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)          | 0.35                                                                              |
| Temperature (Degrees Celsius)    | 17.2                                                                              |
| Redox (ORP mV)                   | -48.8                                                                             |
| parameters                       | @10:25, DTW:73.92, pH:7.03, temp:17.2, cond:1.23, turb:0.02, DO:0.35, redox:-48.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:30, DTW:73.92, pH:7.05, temp:17.6, cond:1.23, turb:0.02, DO:0.3, redox:-50.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 73.92                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.05                                                                             |
| Conductivity (mS/cm)             | 1.23                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.3                                                                              |
| Temperature (Degrees Celsius)    | 17.6                                                                             |
| Redox (ORP mV)                   | -50.2                                                                            |
| parameters                       | @10:30, DTW:73.92, pH:7.05, temp:17.6, cond:1.23, turb:0.02, DO:0.3, redox:-50.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:35, DTW:73.92, pH:7.05, temp:17.8, cond:1.24, turb:0.82, DO:0.28, redox:-52.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 73.92 |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Milliliters Purged (total)    | 1000                                                                              |
| pH                            | 7.05                                                                              |
| Conductivity (mS/cm)          | 1.24                                                                              |
| Turbidity (NTU)               | 0.82                                                                              |
| Dissolved Oxygen (mg/L)       | 0.28                                                                              |
| Temperature (Degrees Celsius) | 17.8                                                                              |
| Redox (ORP mV)                | -52.2                                                                             |
| parameters                    | @10:35, DTW:73.92, pH:7.05, temp:17.8, cond:1.24, turb:0.82, DO:0.28, redox:-52.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:40, DTW:73.92, pH:7.04, temp:17.9, cond:1.23, turb:0.02, DO:0.27, redox:-54

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 73.92                                                                           |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.04                                                                            |
| Conductivity (mS/cm)             | 1.23                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.27                                                                            |
| Temperature (Degrees Celsius)    | 17.9                                                                            |
| Redox (ORP mV)                   | -54                                                                             |
| parameters                       | @10:40, DTW:73.92, pH:7.04, temp:17.9, cond:1.23, turb:0.02, DO:0.27, redox:-54 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 10:40       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 10000       |
| Well Volumes Purged           | 1.85        |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:45 |
| Color         | Clear |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### VOCs

|                     |            |
|---------------------|------------|
| Constituent Sampled | VOCs       |
| Container Type      | 40 mL Vial |

|                      |     |
|----------------------|-----|
| Number of Containers | 3   |
| Preservative         | HCL |

### Well Information

|                          |                                                                     |
|--------------------------|---------------------------------------------------------------------|
| Well Location            | Plant 2                                                             |
| Condition of Well        | Good                                                                |
| Well Locked at Arrival   | Yes                                                                 |
| Well Locked at Departure | Yes                                                                 |
| Comments                 | Pump stopped working halfway through purging. Had to pull and reset |
| Signature                |                                                                     |




Signed 2019-06-07 13:12:42 UTC

## 2019-12-04, MW-16-82

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-04 16:46:15 UTC by Heather Woodrum |
| Updated                                                                                           | 2019-12-04 17:21:30 UTC by Heather Woodrum |
| Location                                                                                          | 42.7380724344801, -84.5849986933959        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Heather Woodrum                            |
| Date                                                                                              | 2019-12-04                                 |
| Well ID                                                                                           | MW-16-82                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cold, overcast, windy                      |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 64.45         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 77            |
| Water Column                                                                                                                                                                                                                                                 | 12.55         |
| Gallons in Well                                                                                                                                                                                                                                              | 2.04          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 73            |
| Purge Start                                                                                                                                                                                                                                                  | 11:50         |

### @12:00, DTW:64.7, pH:7.18, temp:12.1, cond:1.2, turb:0.02, DO:0.4, redox:-105.4

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 12:00                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 64.7                                                                            |
| pH                            | 7.18                                                                            |
| Conductivity (mS/cm)          | 1.2                                                                             |
| Turbidity (NTU)               | 0.02                                                                            |
| Dissolved Oxygen (mg/L)       | 0.4                                                                             |
| Temperature (Degrees Celsius) | 12.1                                                                            |
| Redox (ORP mV)                | -105.4                                                                          |
| parameters                    | @12:00, DTW:64.7, pH:7.18, temp:12.1, cond:1.2, turb:0.02, DO:0.4, redox:-105.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:05, DTW:64.7, pH:7.17, temp:12.1, cond:1.21, turb:0.02, DO:0.34, redox:-105.4

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:05 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 64.7                                                                              |
| pH                            | 7.17                                                                              |
| Conductivity (mS/cm)          | 1.21                                                                              |
| Turbidity (NTU)               | 0.02                                                                              |
| Dissolved Oxygen (mg/L)       | 0.34                                                                              |
| Temperature (Degrees Celsius) | 12.1                                                                              |
| Redox (ORP mV)                | -105.4                                                                            |
| parameters                    | @12:05, DTW:64.7, pH:7.17, temp:12.1, cond:1.21, turb:0.02, DO:0.34, redox:-105.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:10, DTW:64.7, pH:7.17, temp:11.7, cond:1.23, turb:0.02, DO:0.32, redox:-104.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 64.7                                                                              |
| pH                               | 7.17                                                                              |
| Conductivity (mS/cm)             | 1.23                                                                              |
| Turbidity (NTU)                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)          | 0.32                                                                              |
| Temperature (Degrees Celsius)    | 11.7                                                                              |
| Redox (ORP mV)                   | -104.5                                                                            |
| parameters                       | @12:10, DTW:64.7, pH:7.17, temp:11.7, cond:1.23, turb:0.02, DO:0.32, redox:-104.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:15, DTW:64.7, pH:7.17, temp:11.7, cond:1.23, turb:0.02, DO:0.32, redox:-102.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 64.7                                                                              |
| pH                               | 7.17                                                                              |
| Conductivity (mS/cm)             | 1.23                                                                              |
| Turbidity (NTU)                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)          | 0.32                                                                              |
| Temperature (Degrees Celsius)    | 11.7                                                                              |
| Redox (ORP mV)                   | -102.2                                                                            |
| parameters                       | @12:15, DTW:64.7, pH:7.17, temp:11.7, cond:1.23, turb:0.02, DO:0.32, redox:-102.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 12:15 |
|-----------|-------|

## **Sample Information**



|               |       |
|---------------|-------|
| Sample Time   | 12:20 |
| Color         | Clear |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |
| Signature                |         |

A handwritten signature in black ink, consisting of stylized, overlapping loops and a trailing flourish.

Signed 2019-12-04 16:47:36 UTC

## 2019-06-10, MW-16-83, MW-16-83

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-10 09:10:20 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-10 10:11:39 EDT by Christine Gregg   |
| Location                                                                                          | 42.7381009, -84.5873354                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-10                                   |
| Well Identification                                                                               | MW-16-83                                     |
| Well ID                                                                                           | MW-16-83                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Weather                                                                                           | Rain                                         |

### Evacuation Details

|                                                                                                                                                                                                                                                                       |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                      | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                              | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                           | 68.5          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                                  | 80            |
| Water Column                                                                                                                                                                                                                                                          | 11.5          |
| Gallons in Well                                                                                                                                                                                                                                                       | 1.87          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1 \text{ foot}$ ] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                          | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                                | Bladder       |
| Sample Method                                                                                                                                                                                                                                                         | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                              | 75            |
| Purge Start                                                                                                                                                                                                                                                           | 09:20         |

### @09:30, DTW:63.35, pH:7, temp:16.3, cond:4.13, turb:0.02, DO:0.83, redox:124.3

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 09:30                                                                          |
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 63.35                                                                          |
| Milliliters Purged (total)    | 1000                                                                           |
| pH                            | 7                                                                              |
| Conductivity (mS/cm)          | 4.13                                                                           |
| Turbidity (NTU)               | 0.02                                                                           |
| Dissolved Oxygen (mg/L)       | 0.83                                                                           |
| Temperature (Degrees Celsius) | 16.3                                                                           |
| Redox (ORP mV)                | 124.3                                                                          |
| parameters                    | @09:30, DTW:63.35, pH:7, temp:16.3, cond:4.13, turb:0.02, DO:0.83, redox:124.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:35, DTW:63.35, pH:7.05, temp:16.1, cond:4.12, turb:0.02, DO:0.56, redox:99.3

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 63.35                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.05                                                                             |
| Conductivity (mS/cm)             | 4.12                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.56                                                                             |
| Temperature (Degrees Celsius)    | 16.1                                                                             |
| Redox (ORP mV)                   | 99.3                                                                             |
| parameters                       | @09:35, DTW:63.35, pH:7.05, temp:16.1, cond:4.12, turb:0.02, DO:0.56, redox:99.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:40, DTW:63.35, pH:7.08, temp:15.9, cond:4.11, turb:0.02, DO:0.43, redox:74.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 63.35                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.08                                                                             |
| Conductivity (mS/cm)             | 4.11                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.43                                                                             |
| Temperature (Degrees Celsius)    | 15.9                                                                             |
| Redox (ORP mV)                   | 74.8                                                                             |
| parameters                       | @09:40, DTW:63.35, pH:7.08, temp:15.9, cond:4.11, turb:0.02, DO:0.43, redox:74.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:45, DTW:63.35, pH:7.08, temp:15.9, cond:4.11, turb:0.02, DO:0.39, redox:54.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 63.35                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.08                                                                             |
| Conductivity (mS/cm)             | 4.11                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.39                                                                             |
| Temperature (Degrees Celsius)    | 15.9                                                                             |
| Redox (ORP mV)                   | 54.6                                                                             |
| parameters                       | @09:45, DTW:63.35, pH:7.08, temp:15.9, cond:4.11, turb:0.02, DO:0.39, redox:54.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:50, DTW:63.35, pH:7.07, temp:15.8, cond:4.12, turb:0.02, DO:0.33, redox:34.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:50                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 63.35                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.07                                                                             |
| Conductivity (mS/cm)             | 4.12                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.33                                                                             |
| Temperature (Degrees Celsius)    | 15.8                                                                             |
| Redox (ORP mV)                   | 34.5                                                                             |
| parameters                       | @09:50, DTW:63.35, pH:7.07, temp:15.8, cond:4.12, turb:0.02, DO:0.33, redox:34.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:55, DTW:63.35, pH:7.06, temp:15.8, cond:4.12, turb:0.02, DO:0.31, redox:19.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 63.35                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.06                                                                             |
| Conductivity (mS/cm)             | 4.12                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.31                                                                             |
| Temperature (Degrees Celsius)    | 15.8                                                                             |
| Redox (ORP mV)                   | 19.3                                                                             |
| parameters                       | @09:55, DTW:63.35, pH:7.06, temp:15.8, cond:4.12, turb:0.02, DO:0.31, redox:19.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:00, DTW:63.35, pH:7.05, temp:16.1, cond:4.13, turb:0.02, DO:0.38, redox:8.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 63.35 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7.05  |
| Conductivity (mS/cm)             | 4.13  |
| Turbidity (NTU)                  | 0.02  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.38                                                                            |
| Temperature (Degrees Celsius) | 16.1                                                                            |
| Redox (ORP mV)                | 8.5                                                                             |
| parameters                    | @10:00, DTW:63.35, pH:7.05, temp:16.1, cond:4.13, turb:0.02, DO:0.38, redox:8.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:05, DTW:63.35, pH:7.02, temp:16.1, cond:4.16, turb:0.02, DO:0.31, redox:-7**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 10:05                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 63.35                                                                          |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 7.02                                                                           |
| Conductivity (mS/cm)             | 4.16                                                                           |
| Turbidity (NTU)                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)          | 0.31                                                                           |
| Temperature (Degrees Celsius)    | 16.1                                                                           |
| Redox (ORP mV)                   | -7                                                                             |
| parameters                       | @10:05, DTW:63.35, pH:7.02, temp:16.1, cond:4.16, turb:0.02, DO:0.31, redox:-7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:10, DTW:63.35, pH:7, temp:16.2, cond:4.18, turb:0.02, DO:0.3, redox:-12.2**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 10:10                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 63.35                                                                         |
| Milliliters Purged (total)       | 1000                                                                          |
| pH                               | 7                                                                             |
| Conductivity (mS/cm)             | 4.18                                                                          |
| Turbidity (NTU)                  | 0.02                                                                          |
| Dissolved Oxygen (mg/L)          | 0.3                                                                           |
| Temperature (Degrees Celsius)    | 16.2                                                                          |
| Redox (ORP mV)                   | -12.2                                                                         |
| parameters                       | @10:10, DTW:63.35, pH:7, temp:16.2, cond:4.18, turb:0.02, DO:0.3, redox:-12.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:15, DTW:63.35, pH:7, temp:16.3, cond:4.18, turb:0.02, DO:0.29, redox:-15.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 63.35 |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Milliliters Purged (total)                                                                                                                                                                                                                                                                                                                       | 1000                                                                           |
| pH                                                                                                                                                                                                                                                                                                                                               | 7                                                                              |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 4.18                                                                           |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.29                                                                           |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 16.3                                                                           |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -15.9                                                                          |
| parameters                                                                                                                                                                                                                                                                                                                                       | @10:15, DTW:63.35, pH:7, temp:16.3, cond:4.18, turb:0.02, DO:0.29, redox:-15.9 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 10:15                                                                          |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                    |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 9000                                                                           |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 1.27                                                                           |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:20 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of two distinct parts. The first part is a stylized, cursive letter 'A' or 'H'. The second part is a more complex, flowing cursive sequence that appears to be 'Pm' followed by a long, sweeping horizontal stroke.

Signed 2019-06-10 13:26:32 UTC

---

## 2019-02-26, MW-16-84, MW-16-84

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-02-26 13:27:52 EST by Billy Cobern    |
| Updated                                                                                           | 2019-02-26 13:47:24 EST by Christine Gregg |
| Location                                                                                          | 42.73818236, -84.58423636                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-02-26                                 |
| Well Identification                                                                               | MW-16-84                                   |
| Well ID                                                                                           | MW-16-84                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | MSMSD                                      |
| Weather                                                                                           | Cloudy 20's                                |

### Evacuation Details

|                                                                                                                                                                                                                                                                     |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                    | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                            | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                         | 65.88         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                                | 81.15         |
| Water Column                                                                                                                                                                                                                                                        | 15.27         |
| Gallons in Well                                                                                                                                                                                                                                                     | 2.48          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1 \text{ foot}$ ] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                        | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                              | Bladder       |
| Sample Method                                                                                                                                                                                                                                                       | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                            | 78            |
| Purge Start                                                                                                                                                                                                                                                         | 13:15         |

### @13:15, DTW:65.88, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 13:15                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 65.88                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @13:15, DTW:65.88, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:20, DTW:66.09, pH:7.39, temp:2.7, cond:1.18, turb:21.6, DO:9.72, redox:16.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 66.09 |
| Milliliters Purged (total)       | 500   |



|                               |      |
|-------------------------------|------|
| pH                            | 7.39 |
| Conductivity (mS/cm)          | 1.18 |
| Turbidity (NTU)               | 21.6 |
| Dissolved Oxygen (mg/L)       | 9.72 |
| Temperature (Degrees Celsius) | 2.7  |
| Redox (ORP mV)                | 16.5 |

parameters @13:20, DTW:66.09, pH:7.39, temp:2.7, cond:1.18, turb:21.6, DO:9.72, redox:16.5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:25, DTW:66.29, pH:7.34, temp:3.2, cond:1.16, turb:14.8, DO:8.74, redox:16.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 66.29 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7.34  |
| Conductivity (mS/cm)             | 1.16  |
| Turbidity (NTU)                  | 14.8  |
| Dissolved Oxygen (mg/L)          | 8.74  |
| Temperature (Degrees Celsius)    | 3.2   |
| Redox (ORP mV)                   | 16.2  |

parameters @13:25, DTW:66.29, pH:7.34, temp:3.2, cond:1.16, turb:14.8, DO:8.74, redox:16.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:30, DTW:66.43, pH:7.3, temp:3.9, cond:1.15, turb:12.2, DO:8.02, redox:15.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 66.43 |
| Milliliters Purged (total)       | 1500  |
| pH                               | 7.3   |
| Conductivity (mS/cm)             | 1.15  |
| Turbidity (NTU)                  | 12.2  |
| Dissolved Oxygen (mg/L)          | 8.02  |
| Temperature (Degrees Celsius)    | 3.9   |
| Redox (ORP mV)                   | 15.3  |

parameters @13:30, DTW:66.43, pH:7.3, temp:3.9, cond:1.15, turb:12.2, DO:8.02, redox:15.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:35, DTW:66.59, pH:7.31, temp:4.2, cond:1.16, turb:9.86, DO:7.85, redox:12.9**

|              |       |
|--------------|-------|
| Reading Time | 13:35 |
|--------------|-------|

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 66.59                                                                           |
| Milliliters Purged (total)       | 2000                                                                            |
| pH                               | 7.31                                                                            |
| Conductivity (mS/cm)             | 1.16                                                                            |
| Turbidity (NTU)                  | 9.86                                                                            |
| Dissolved Oxygen (mg/L)          | 7.85                                                                            |
| Temperature (Degrees Celsius)    | 4.2                                                                             |
| Redox (ORP mV)                   | 12.9                                                                            |
| parameters                       | @13:35, DTW:66.59, pH:7.31, temp:4.2, cond:1.16, turb:9.86, DO:7.85, redox:12.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:66.72, pH:7.32, temp:4.6, cond:1.15, turb:9.02, DO:7.39, redox:11.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 66.72                                                                           |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 7.32                                                                            |
| Conductivity (mS/cm)             | 1.15                                                                            |
| Turbidity (NTU)                  | 9.02                                                                            |
| Dissolved Oxygen (mg/L)          | 7.39                                                                            |
| Temperature (Degrees Celsius)    | 4.6                                                                             |
| Redox (ORP mV)                   | 11.4                                                                            |
| parameters                       | @13:40, DTW:66.72, pH:7.32, temp:4.6, cond:1.15, turb:9.02, DO:7.39, redox:11.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:45, DTW:66.81, pH:7.33, temp:4.8, cond:1.16, turb:8.34, DO:7.31, redox:10.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 66.81                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.33                                                                            |
| Conductivity (mS/cm)             | 1.16                                                                            |
| Turbidity (NTU)                  | 8.34                                                                            |
| Dissolved Oxygen (mg/L)          | 7.31                                                                            |
| Temperature (Degrees Celsius)    | 4.8                                                                             |
| Redox (ORP mV)                   | 10.4                                                                            |
| parameters                       | @13:45, DTW:66.81, pH:7.33, temp:4.8, cond:1.16, turb:8.34, DO:7.31, redox:10.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:50, DTW:66.92, pH:7.33, temp:5, cond:1.15, turb:7.95, DO:7.24, redox:9.8**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 13:50                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 66.92                                                                        |
| Milliliters Purged (total)       | 3500                                                                         |
| pH                               | 7.33                                                                         |
| Conductivity (mS/cm)             | 1.15                                                                         |
| Turbidity (NTU)                  | 7.95                                                                         |
| Dissolved Oxygen (mg/L)          | 7.24                                                                         |
| Temperature (Degrees Celsius)    | 5                                                                            |
| Redox (ORP mV)                   | 9.8                                                                          |
| parameters                       | @13:50, DTW:66.92, pH:7.33, temp:5, cond:1.15, turb:7.95, DO:7.24, redox:9.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:55, DTW:67.02, pH:7.33, temp:5, cond:1.15, turb:8.19, DO:7.19, redox:8.8**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 13:55                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 67.02                                                                        |
| Milliliters Purged (total)       | 4500                                                                         |
| pH                               | 7.33                                                                         |
| Conductivity (mS/cm)             | 1.15                                                                         |
| Turbidity (NTU)                  | 8.19                                                                         |
| Dissolved Oxygen (mg/L)          | 7.19                                                                         |
| Temperature (Degrees Celsius)    | 5                                                                            |
| Redox (ORP mV)                   | 8.8                                                                          |
| parameters                       | @13:55, DTW:67.02, pH:7.33, temp:5, cond:1.15, turb:8.19, DO:7.19, redox:8.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 13:55       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 4500        |
| Well Volumes Purged           | 0.48        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:55 |
| Color         | Clear |
| Notable odors | No    |

## 1,4 Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4 Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 9           |
| Preservative         | HCL         |

## Well Information

|                          |                                   |
|--------------------------|-----------------------------------|
| Well Location            | On site, Plant 2                  |
| Condition of Well        | Good                              |
| Well Locked at Arrival   | Yes                               |
| Well Locked at Departure | Yes                               |
| Comments                 | Didn't meet drawdown requirements |

Signature

A handwritten signature in black ink, appearing to be 'B. Bell', written over a large, faint, light-gray watermark of the same signature.

Signed 2019-02-26 18:30:20 UTC

## 2019-06-04, MW-16-84, MW-16-84

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-04 09:30:25 EDT by Jessica Fransted |
| Updated                                                                                           | 2019-06-04 11:42:07 EDT by Christine Gregg  |
| Location                                                                                          | 42.7382113, -84.5841987                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-04                                  |
| Well Identification                                                                               | MW-16-84                                    |
| Well ID                                                                                           | MW-16-84                                    |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                         |
| Weather                                                                                           | Sunny 70s                                   |

### Evacuation Details

|                                                                                                                                                                                                                                                           |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing     |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2                 |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 67.85             |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 77                |
| Water Column                                                                                                                                                                                                                                              | 9.150000000000006 |
| Gallons in Well                                                                                                                                                                                                                                           | 1.49              |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                   |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow          |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder           |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow          |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 74                |
| Purge Start                                                                                                                                                                                                                                               | 10:45             |

### @10:45, DTW:., pH:7.94, temp:17.1, cond:1099, turb:5.5, DO:8.01, redox:133.9

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Reading Time                  | 10:45                                                                        |
| Rate (mL/min)                 | 200                                                                          |
| pH                            | 7.94                                                                         |
| Conductivity (mS/cm)          | 1099                                                                         |
| Turbidity (NTU)               | 5.5                                                                          |
| Dissolved Oxygen (mg/L)       | 8.01                                                                         |
| Temperature (Degrees Celsius) | 17.1                                                                         |
| Redox (ORP mV)                | 133.9                                                                        |
| parameters                    | @10:45, DTW:., pH:7.94, temp:17.1, cond:1099, turb:5.5, DO:8.01, redox:133.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:50, DTW:., pH:7.99, temp:17, cond:1106, turb:6, DO:8.11, redox:125.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:50 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                         |
|-------------------------------|-------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                     |
| pH                            | 7.99                                                                    |
| Conductivity (mS/cm)          | 1106                                                                    |
| Turbidity (NTU)               | 6                                                                       |
| Dissolved Oxygen (mg/L)       | 8.11                                                                    |
| Temperature (Degrees Celsius) | 17                                                                      |
| Redox (ORP mV)                | 125.7                                                                   |
| parameters                    | @10:50, DTW:, pH:7.99, temp:17, cond:1106, turb:6, DO:8.11, redox:125.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:55, DTW:, pH:7.86, temp:17, cond:1151, turb:9.04, DO:7.23, redox:68.6**

|                                  |                                                                           |
|----------------------------------|---------------------------------------------------------------------------|
| Reading Time                     | 10:55                                                                     |
| Minutes Elapsed between readings | 5                                                                         |
| Rate (mL/min)                    | 200                                                                       |
| pH                               | 7.86                                                                      |
| Conductivity (mS/cm)             | 1151                                                                      |
| Turbidity (NTU)                  | 9.04                                                                      |
| Dissolved Oxygen (mg/L)          | 7.23                                                                      |
| Temperature (Degrees Celsius)    | 17                                                                        |
| Redox (ORP mV)                   | 68.6                                                                      |
| parameters                       | @10:55, DTW:, pH:7.86, temp:17, cond:1151, turb:9.04, DO:7.23, redox:68.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@23:00, DTW:, pH:7.85, temp:17.2, cond:1170, turb:7.65, DO:7.36, redox:52.4**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 23:00                                                                       |
| Minutes Elapsed between readings | 725                                                                         |
| Rate (mL/min)                    | 200                                                                         |
| pH                               | 7.85                                                                        |
| Conductivity (mS/cm)             | 1170                                                                        |
| Turbidity (NTU)                  | 7.65                                                                        |
| Dissolved Oxygen (mg/L)          | 7.36                                                                        |
| Temperature (Degrees Celsius)    | 17.2                                                                        |
| Redox (ORP mV)                   | 52.4                                                                        |
| parameters                       | @23:00, DTW:, pH:7.85, temp:17.2, cond:1170, turb:7.65, DO:7.36, redox:52.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:05, DTW:, pH:7.91, temp:17.1, cond:1185, turb:9.86, DO:7.57, redox:62**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:05 |
| Minutes Elapsed between readings | 725   |
| Rate (mL/min)                    | 200   |
| pH                               | 7.91  |

|                               |                                                                           |
|-------------------------------|---------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1185                                                                      |
| Turbidity (NTU)               | 9.86                                                                      |
| Dissolved Oxygen (mg/L)       | 7.57                                                                      |
| Temperature (Degrees Celsius) | 17.1                                                                      |
| Redox (ORP mV)                | 62                                                                        |
| parameters                    | @11:05, DTW:, pH:7.91, temp:17.1, cond:1185, turb:9.86, DO:7.57, redox:62 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:10, DTW:, pH:7.92, temp:17.5, cond:1203, turb:9.88, DO:7.39, redox:60.5**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 11:10                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 200                                                                         |
| pH                               | 7.92                                                                        |
| Conductivity (mS/cm)             | 1203                                                                        |
| Turbidity (NTU)                  | 9.88                                                                        |
| Dissolved Oxygen (mg/L)          | 7.39                                                                        |
| Temperature (Degrees Celsius)    | 17.5                                                                        |
| Redox (ORP mV)                   | 60.5                                                                        |
| parameters                       | @11:10, DTW:, pH:7.92, temp:17.5, cond:1203, turb:9.88, DO:7.39, redox:60.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:15, DTW:, pH:7.96, temp:17.5, cond:1217, turb:8.73, DO:7.7, redox:62.4**

|                                  |                                                                            |
|----------------------------------|----------------------------------------------------------------------------|
| Reading Time                     | 11:15                                                                      |
| Minutes Elapsed between readings | 5                                                                          |
| Rate (mL/min)                    | 200                                                                        |
| pH                               | 7.96                                                                       |
| Conductivity (mS/cm)             | 1217                                                                       |
| Turbidity (NTU)                  | 8.73                                                                       |
| Dissolved Oxygen (mg/L)          | 7.7                                                                        |
| Temperature (Degrees Celsius)    | 17.5                                                                       |
| Redox (ORP mV)                   | 62.4                                                                       |
| parameters                       | @11:15, DTW:, pH:7.96, temp:17.5, cond:1217, turb:8.73, DO:7.7, redox:62.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:20, DTW:, pH:8, temp:17.3, cond:1238, turb:10.3, DO:7.96, redox:59**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| pH                               | 8     |
| Conductivity (mS/cm)             | 1238  |
| Turbidity (NTU)                  | 10.3  |

|                               |                                                                        |
|-------------------------------|------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 7.96                                                                   |
| Temperature (Degrees Celsius) | 17.3                                                                   |
| Redox (ORP mV)                | 59                                                                     |
| parameters                    | @11:20, DTW:, pH:8, temp:17.3, cond:1238, turb:10.3, DO:7.96, redox:59 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:25, DTW:, pH:8, temp:17.3, cond:1230, turb:9.71, DO:7.89, redox:60.1

|                                  |                                                                          |
|----------------------------------|--------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                    |
| Minutes Elapsed between readings | 5                                                                        |
| Rate (mL/min)                    | 200                                                                      |
| pH                               | 8                                                                        |
| Conductivity (mS/cm)             | 1230                                                                     |
| Turbidity (NTU)                  | 9.71                                                                     |
| Dissolved Oxygen (mg/L)          | 7.89                                                                     |
| Temperature (Degrees Celsius)    | 17.3                                                                     |
| Redox (ORP mV)                   | 60.1                                                                     |
| parameters                       | @11:25, DTW:, pH:8, temp:17.3, cond:1230, turb:9.71, DO:7.89, redox:60.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 11:25 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:25 |
| Color         | Clear |
| Notable odors | None  |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |



Signature

Jessica Fawcett

Signed 2019-06-04 15:41:50 UTC

---

## 2019-06-04, MW-16-85, MW-16-85

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-04 12:07:23 EDT by Jessica Fransted |
| Updated                                                                                           | 2019-06-04 14:05:42 EDT by Christine Gregg  |
| Location                                                                                          | 42.7383442, -84.5838467                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-04                                  |
| Well Identification                                                                               | MW-16-85                                    |
| Well ID                                                                                           | MW-16-85                                    |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                         |
| Weather                                                                                           | Cloudy 70s                                  |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 68.43         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 75            |
| Purge Start                                                                                                                                                                                                                                                  | 12:45         |

### @12:45, DTW:., pH:7.91, temp:19.6, cond:1, turb:10.9, DO:7.48, redox:115.7

|                               |                                                                            |
|-------------------------------|----------------------------------------------------------------------------|
| Reading Time                  | 12:45                                                                      |
| Rate (mL/min)                 | 200                                                                        |
| pH                            | 7.91                                                                       |
| Conductivity (mS/cm)          | 1                                                                          |
| Turbidity (NTU)               | 10.9                                                                       |
| Dissolved Oxygen (mg/L)       | 7.48                                                                       |
| Temperature (Degrees Celsius) | 19.6                                                                       |
| Redox (ORP mV)                | 115.7                                                                      |
| parameters                    | @12:45, DTW:., pH:7.91, temp:19.6, cond:1, turb:10.9, DO:7.48, redox:115.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:54, DTW:., pH:7.9, temp:21.3, cond:1, turb:7.71, DO:6.5, redox:104.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:54 |
| Minutes Elapsed between readings | 9     |
| Rate (mL/min)                    | 200   |
| pH                               | 7.9   |
| Conductivity (mS/cm)             | 1     |

|                               |                                                                         |
|-------------------------------|-------------------------------------------------------------------------|
| Turbidity (NTU)               | 7.71                                                                    |
| Dissolved Oxygen (mg/L)       | 6.5                                                                     |
| Temperature (Degrees Celsius) | 21.3                                                                    |
| Redox (ORP mV)                | 104.9                                                                   |
| parameters                    | @12:54, DTW:, pH:7.9, temp:21.3, cond:1, turb:7.71, DO:6.5, redox:104.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:00, DTW:, pH:7.92, temp:23.5, cond:1, turb:19.8, DO:6.18, redox:96.1**

|                                  |                                                                          |
|----------------------------------|--------------------------------------------------------------------------|
| Reading Time                     | 13:00                                                                    |
| Minutes Elapsed between readings | 6                                                                        |
| Rate (mL/min)                    | 200                                                                      |
| pH                               | 7.92                                                                     |
| Conductivity (mS/cm)             | 1                                                                        |
| Turbidity (NTU)                  | 19.8                                                                     |
| Dissolved Oxygen (mg/L)          | 6.18                                                                     |
| Temperature (Degrees Celsius)    | 23.5                                                                     |
| Redox (ORP mV)                   | 96.1                                                                     |
| parameters                       | @13:00, DTW:, pH:7.92, temp:23.5, cond:1, turb:19.8, DO:6.18, redox:96.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:05, DTW:, pH:7.92, temp:24.5, cond:1.01, turb:18.4, DO:5.69, redox:94.91**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 13:05                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| pH                               | 7.92                                                                         |
| Conductivity (mS/cm)             | 1.01                                                                         |
| Turbidity (NTU)                  | 18.4                                                                         |
| Dissolved Oxygen (mg/L)          | 5.69                                                                         |
| Temperature (Degrees Celsius)    | 24.5                                                                         |
| Redox (ORP mV)                   | 94.91                                                                        |
| parameters                       | @13:05, DTW:, pH:7.92, temp:24.5, cond:1.01, turb:18.4, DO:5.69, redox:94.91 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:10, DTW:, pH:7.97, temp:25, cond:1.01, turb:40.2, DO:5.36, redox:96**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| pH                               | 7.97  |
| Conductivity (mS/cm)             | 1.01  |
| Turbidity (NTU)                  | 40.2  |
| Dissolved Oxygen (mg/L)          | 5.36  |

|                               |                                                                         |
|-------------------------------|-------------------------------------------------------------------------|
| Temperature (Degrees Celsius) | 25                                                                      |
| Redox (ORP mV)                | 96                                                                      |
| parameters                    | @13:10, DTW:, pH:7.97, temp:25, cond:1.01, turb:40.2, DO:5.36, redox:96 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:16, DTW:, pH:7.9, temp:25.2, cond:1.01, turb:41.3, DO:5.18, redox:96.6**

|                                  |                                                                            |
|----------------------------------|----------------------------------------------------------------------------|
| Reading Time                     | 13:16                                                                      |
| Minutes Elapsed between readings | 6                                                                          |
| Rate (mL/min)                    | 200                                                                        |
| pH                               | 7.9                                                                        |
| Conductivity (mS/cm)             | 1.01                                                                       |
| Turbidity (NTU)                  | 41.3                                                                       |
| Dissolved Oxygen (mg/L)          | 5.18                                                                       |
| Temperature (Degrees Celsius)    | 25.2                                                                       |
| Redox (ORP mV)                   | 96.6                                                                       |
| parameters                       | @13:16, DTW:, pH:7.9, temp:25.2, cond:1.01, turb:41.3, DO:5.18, redox:96.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:20, DTW:, pH:7.89, temp:25.4, cond:1.01, turb:39, DO:4.92, redox:97**

|                                  |                                                                         |
|----------------------------------|-------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                   |
| Minutes Elapsed between readings | 4                                                                       |
| Rate (mL/min)                    | 200                                                                     |
| pH                               | 7.89                                                                    |
| Conductivity (mS/cm)             | 1.01                                                                    |
| Turbidity (NTU)                  | 39                                                                      |
| Dissolved Oxygen (mg/L)          | 4.92                                                                    |
| Temperature (Degrees Celsius)    | 25.4                                                                    |
| Redox (ORP mV)                   | 97                                                                      |
| parameters                       | @13:20, DTW:, pH:7.89, temp:25.4, cond:1.01, turb:39, DO:4.92, redox:97 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:26, DTW:, pH:7.89, temp:25.8, cond:1.01, turb:9.93, DO:4.6, redox:97**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:26 |
| Minutes Elapsed between readings | 6     |
| Rate (mL/min)                    | 200   |
| pH                               | 7.89  |
| Conductivity (mS/cm)             | 1.01  |
| Turbidity (NTU)                  | 9.93  |
| Dissolved Oxygen (mg/L)          | 4.6   |
| Temperature (Degrees Celsius)    | 25.8  |
| Redox (ORP mV)                   | 97    |

parameters

@13:26, DTW:, pH:7.89, temp:25.8, cond:1.01, turb:9.93, DO:4.6, redox:97

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:31, DTW:, pH:7.88, temp:26, cond:1.01, turb:5.94, DO:4.73, redox:97.2**

Reading Time 13:31

Minutes Elapsed between readings 5

Rate (mL/min) 200

pH 7.88

Conductivity (mS/cm) 1.01

Turbidity (NTU) 5.94

Dissolved Oxygen (mg/L) 4.73

Temperature (Degrees Celsius) 26

Redox (ORP mV) 97.2

parameters

@13:31, DTW:, pH:7.88, temp:26, cond:1.01, turb:5.94, DO:4.73, redox:97.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:35, DTW:, pH:7.88, temp:26.2, cond:1.01, turb:4.41, DO:4.49, redox:97.3**

Reading Time 13:35

Minutes Elapsed between readings 4

Rate (mL/min) 200

pH 7.88

Conductivity (mS/cm) 1.01

Turbidity (NTU) 4.41

Dissolved Oxygen (mg/L) 4.49

Temperature (Degrees Celsius) 26.2

Redox (ORP mV) 97.3

parameters

@13:35, DTW:, pH:7.88, temp:26.2, cond:1.01, turb:4.41, DO:4.49, redox:97.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

Purge End 13:35

## Sample Information

Sample Time 13:35

Color Clear

Notable odors None

## 1,4-Dioxane

Constituent Sampled 1,4-Dioxane

Container Type 40 mL Vial

Number of Containers 3

Preservative HCL

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

### Well Information

|                          |              |
|--------------------------|--------------|
| Well Location            | Plant 2      |
| Condition of Well        | Good         |
| Well Locked at Arrival   | No           |
| Well Locked at Departure | No           |
| Comments                 | Missing lock |

Signature

A handwritten signature in black ink, appearing to read "Rusty Lunk". The signature is written in a cursive, flowing style with a large loop at the end.

Signed 2019-06-04 16:43:41 UTC

## 2019-06-04, MW-17-86, MW-17-86

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-04 10:32:01 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-04 11:38:23 EDT by Christine Gregg   |
| Location                                                                                          | 42.7379976, -84.5834924                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-04                                   |
| Well Identification                                                                               | MW-17-86                                     |
| Well ID                                                                                           | MW-17-86                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Replicate No. (e.g. Dup)                                                                          | Dup-03                                       |
| Weather                                                                                           | Sunny                                        |

### Evacuation Details

|                                                                                                                                                                                                                                                        |                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing      |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2                  |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 65.15              |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 81.45              |
| Water Column                                                                                                                                                                                                                                           | 16.299999999999997 |
| Gallons in Well                                                                                                                                                                                                                                        | 2.65               |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                    |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow           |
| Type of Equipment used                                                                                                                                                                                                                                 | Bladder            |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow           |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 78                 |
| Purge Start                                                                                                                                                                                                                                            | 10:55              |

### @11:05, DTW:65.6, pH:6.94, temp:17.9, cond:1.52, turb:62.7, DO:0.71, redox:114.3

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 11:05                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 65.6                                                                             |
| Milliliters Purged (total)    | 200                                                                              |
| pH                            | 6.94                                                                             |
| Conductivity (mS/cm)          | 1.52                                                                             |
| Turbidity (NTU)               | 62.7                                                                             |
| Dissolved Oxygen (mg/L)       | 0.71                                                                             |
| Temperature (Degrees Celsius) | 17.9                                                                             |
| Redox (ORP mV)                | 114.3                                                                            |
| parameters                    | @11:05, DTW:65.6, pH:6.94, temp:17.9, cond:1.52, turb:62.7, DO:0.71, redox:114.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:10, DTW:65.6, pH:6.97, temp:17.4, cond:1.52, turb:40, DO:0.66, redox:107**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 11:10                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 65.6                                                                         |
| Milliliters Purged (total)       | 1000                                                                         |
| pH                               | 6.97                                                                         |
| Conductivity (mS/cm)             | 1.52                                                                         |
| Turbidity (NTU)                  | 40                                                                           |
| Dissolved Oxygen (mg/L)          | 0.66                                                                         |
| Temperature (Degrees Celsius)    | 17.4                                                                         |
| Redox (ORP mV)                   | 107                                                                          |
| parameters                       | @11:10, DTW:65.6, pH:6.97, temp:17.4, cond:1.52, turb:40, DO:0.66, redox:107 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:15, DTW:65.6, pH:6.96, temp:17.6, cond:1.55, turb:18.5, DO:0.35, redox:102.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.6                                                                             |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 6.96                                                                             |
| Conductivity (mS/cm)             | 1.55                                                                             |
| Turbidity (NTU)                  | 18.5                                                                             |
| Dissolved Oxygen (mg/L)          | 0.35                                                                             |
| Temperature (Degrees Celsius)    | 17.6                                                                             |
| Redox (ORP mV)                   | 102.2                                                                            |
| parameters                       | @11:15, DTW:65.6, pH:6.96, temp:17.6, cond:1.55, turb:18.5, DO:0.35, redox:102.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:20, DTW:65.6, pH:6.95, temp:17.8, cond:1.57, turb:9.49, DO:0.27, redox:98.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.6  |
| Milliliters Purged (total)       | 3000  |
| pH                               | 6.95  |
| Conductivity (mS/cm)             | 1.57  |
| Turbidity (NTU)                  | 9.49  |
| Dissolved Oxygen (mg/L)          | 0.27  |
| Temperature (Degrees Celsius)    | 17.8  |
| Redox (ORP mV)                   | 98.9  |



parameters

@11:20, DTW:65.6, pH:6.95, temp:17.8, cond:1.57, turb:9.49, DO:0.27, redox:98.9

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:25, DTW:65.6, pH:6.95, temp:18, cond:1.52, turb:2.95, DO:0.26, redox:96.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.6  |
| Milliliters Purged (total)       | 4000  |
| pH                               | 6.95  |
| Conductivity (mS/cm)             | 1.52  |
| Turbidity (NTU)                  | 2.95  |
| Dissolved Oxygen (mg/L)          | 0.26  |
| Temperature (Degrees Celsius)    | 18    |
| Redox (ORP mV)                   | 96.4  |

parameters

@11:25, DTW:65.6, pH:6.95, temp:18, cond:1.52, turb:2.95, DO:0.26, redox:96.4

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:30, DTW:65.6, pH:6.95, temp:18.1, cond:1.59, turb:2.8, DO:0.23, redox:95.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.6  |
| Milliliters Purged (total)       | 1000  |
| pH                               | 6.95  |
| Conductivity (mS/cm)             | 1.59  |
| Turbidity (NTU)                  | 2.8   |
| Dissolved Oxygen (mg/L)          | 0.23  |
| Temperature (Degrees Celsius)    | 18.1  |
| Redox (ORP mV)                   | 95.6  |

parameters

@11:30, DTW:65.6, pH:6.95, temp:18.1, cond:1.59, turb:2.8, DO:0.23, redox:95.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:35, DTW:65.6, pH:6.94, temp:17.9, cond:1.6, turb:2.5, DO:0.23, redox:93.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.6  |
| Milliliters Purged (total)       | 1000  |
| pH                               | 6.94  |
| Conductivity (mS/cm)             | 1.6   |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 2.5                                                                           |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.23                                                                          |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 17.9                                                                          |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 93.5                                                                          |
| parameters                                                                                                                                                                                                                                                                                                                                       | @11:35, DTW:65.6, pH:6.94, temp:17.9, cond:1.6, turb:2.5, DO:0.23, redox:93.5 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                               |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 11:36                                                                         |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                   |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 8000                                                                          |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.8                                                                           |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:40 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of two distinct parts. The left part is a stylized, cursive 'M' or 'W' shape. The right part is a more complex, flowing signature that includes a large loop and several smaller curves.

Signed 2019-06-04 14:36:03 UTC

---

## 2019-12-03, MW-17-86

|                                                                                                   |                                           |
|---------------------------------------------------------------------------------------------------|-------------------------------------------|
| Created                                                                                           | 2019-12-03 16:18:21 UTC by Melissa Weaver |
| Updated                                                                                           | 2019-12-03 22:06:50 UTC by Melissa Weaver |
| Location                                                                                          | 42.7380202990423, -84.5836174395723       |
| Project Number                                                                                    | 30006870                                  |
| Project Name / Location                                                                           | RACER Lansing, MI                         |
| Sampler Name                                                                                      | Melissa Weaver                            |
| Date                                                                                              | 2019-12-03                                |
| Well ID                                                                                           | MW-17-86                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                       |
| Weather                                                                                           | 26 cloudy                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 64.05         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 78            |
| Water Column                                                                                                                                                                                                                                                 | 13.95         |
| Gallons in Well                                                                                                                                                                                                                                              | 2.27          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 75            |
| Purge Start                                                                                                                                                                                                                                                  | 11:30         |

### @11:40, DTW:64.32, pH:6.6, temp:11.4, cond:1.6, turb:0.02, DO:0.35, redox:29

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Reading Time                  | 11:40                                                                        |
| Rate (mL/min)                 | 200                                                                          |
| Depth to Water (ft)           | 64.32                                                                        |
| pH                            | 6.6                                                                          |
| Conductivity (mS/cm)          | 1.6                                                                          |
| Turbidity (NTU)               | 0.02                                                                         |
| Dissolved Oxygen (mg/L)       | 0.35                                                                         |
| Temperature (Degrees Celsius) | 11.4                                                                         |
| Redox (ORP mV)                | 29                                                                           |
| parameters                    | @11:40, DTW:64.32, pH:6.6, temp:11.4, cond:1.6, turb:0.02, DO:0.35, redox:29 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:45, DTW:64.25, pH:6.94, temp:11.4, cond:, turb:0.02, DO:0.26, redox:-17.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:45 |
| Minutes Elapsed between readings | 5     |

|                               |       |
|-------------------------------|-------|
| Depth to Water (ft)           | 64.25 |
| pH                            | 6.94  |
| Turbidity (NTU)               | 0.02  |
| Dissolved Oxygen (mg/L)       | 0.26  |
| Temperature (Degrees Celsius) | 11.4  |
| Redox (ORP mV)                | -17.7 |

parameters @11:45, DTW:64.25, pH:6.94, temp:11.4, cond:, turb:0.02, DO:0.26, redox:-17.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:50, DTW:64.23, pH:6.93, temp:11.6, cond:1.66, turb:0.02, DO:0.23, redox:-24.8

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 64.23 |
| pH                               | 6.93  |
| Conductivity (mS/cm)             | 1.66  |
| Turbidity (NTU)                  | 0.02  |
| Dissolved Oxygen (mg/L)          | 0.23  |
| Temperature (Degrees Celsius)    | 11.6  |
| Redox (ORP mV)                   | -24.8 |

parameters @11:50, DTW:64.23, pH:6.93, temp:11.6, cond:1.66, turb:0.02, DO:0.23, redox:-24.8

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:55, DTW:64.23, pH:6.92, temp:11.3, cond:1.66, turb:0.02, DO:0.21, redox:-33

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 64.23 |
| pH                               | 6.92  |
| Conductivity (mS/cm)             | 1.66  |
| Turbidity (NTU)                  | 0.02  |
| Dissolved Oxygen (mg/L)          | 0.21  |
| Temperature (Degrees Celsius)    | 11.3  |
| Redox (ORP mV)                   | -33   |

parameters @11:55, DTW:64.23, pH:6.92, temp:11.3, cond:1.66, turb:0.02, DO:0.21, redox:-33

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:00, DTW:64.19, pH:6.91, temp:11.3, cond:1.67, turb:0.02, DO:0.19, redox:-39.2

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 64.19                                                                             |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.91                                                                              |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1.67                                                                              |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.19                                                                              |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 11.3                                                                              |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -39.2                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @12:00, DTW:64.19, pH:6.91, temp:11.3, cond:1.67, turb:0.02, DO:0.19, redox:-39.2 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                   |

### **@12:05, DTW:64.19, pH:6.9, temp:11.3, cond:1.67, turb:0.02, DO:0.19, redox:-44.1**

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 12:05                                                                            |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                                |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 200                                                                              |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 64.19                                                                            |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.9                                                                              |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1.67                                                                             |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.19                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 11.3                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -44.1                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @12:05, DTW:64.19, pH:6.9, temp:11.3, cond:1.67, turb:0.02, DO:0.19, redox:-44.1 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |

### **@12:10, DTW:64.21, pH:6.9, temp:11.3, cond:1.67, turb:0.02, DO:0.18, redox:-48.5**

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 12:10                                                                            |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                                |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 200                                                                              |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 64.21                                                                            |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.9                                                                              |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1.67                                                                             |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.18                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 11.3                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -48.5                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @12:10, DTW:64.21, pH:6.9, temp:11.3, cond:1.67, turb:0.02, DO:0.18, redox:-48.5 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 12:10                                                                            |

### **Sample Information**

|             |       |
|-------------|-------|
| Sample Time | 12:10 |
|-------------|-------|

|               |       |
|---------------|-------|
| Color         | Clear |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of stylized, cursive letters that appear to read 'M L'.

Signed 2019-12-03 16:20:16 UTC

## 2019-06-10, MW-17-87, MW-17-87

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-10 10:34:51 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-10 11:23:03 EDT by Christine Gregg   |
| Location                                                                                          | 42.7381523, -84.5872487                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-10                                   |
| Well Identification                                                                               | MW-17-87                                     |
| Well ID                                                                                           | MW-17-87                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Weather                                                                                           | Overcast                                     |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 4             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 69.58         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 119           |
| Water Column                                                                                                                                                                                                                                              | 49.42         |
| Gallons in Well                                                                                                                                                                                                                                           | 32.12         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 110           |
| Purge Start                                                                                                                                                                                                                                               | 10:35         |

### @10:45, DTW:63.35, pH:7.29, temp:17.1, cond:3.5, turb:41.5, DO:1.86, redox:-41

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 10:45                                                                          |
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 63.35                                                                          |
| Milliliters Purged (total)    | 1000                                                                           |
| pH                            | 7.29                                                                           |
| Conductivity (mS/cm)          | 3.5                                                                            |
| Turbidity (NTU)               | 41.5                                                                           |
| Dissolved Oxygen (mg/L)       | 1.86                                                                           |
| Temperature (Degrees Celsius) | 17.1                                                                           |
| Redox (ORP mV)                | -41                                                                            |
| parameters                    | @10:45, DTW:63.35, pH:7.29, temp:17.1, cond:3.5, turb:41.5, DO:1.86, redox:-41 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:50, DTW:63.35, pH:7.44, temp:16.8, cond:3.5, turb:26.8, DO:0.52, redox:-97.5



|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:50                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 63.35                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.44                                                                             |
| Conductivity (mS/cm)             | 3.5                                                                              |
| Turbidity (NTU)                  | 26.8                                                                             |
| Dissolved Oxygen (mg/L)          | 0.52                                                                             |
| Temperature (Degrees Celsius)    | 16.8                                                                             |
| Redox (ORP mV)                   | -97.5                                                                            |
| parameters                       | @10:50, DTW:63.35, pH:7.44, temp:16.8, cond:3.5, turb:26.8, DO:0.52, redox:-97.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:55, DTW:63.35, pH:7.48, temp:17.1, cond:3.48, turb:19.1, DO:0.15, redox:-153.5**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 10:55                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 63.35                                                                              |
| Milliliters Purged (total)       | 1000                                                                               |
| pH                               | 7.48                                                                               |
| Conductivity (mS/cm)             | 3.48                                                                               |
| Turbidity (NTU)                  | 19.1                                                                               |
| Dissolved Oxygen (mg/L)          | 0.15                                                                               |
| Temperature (Degrees Celsius)    | 17.1                                                                               |
| Redox (ORP mV)                   | -153.5                                                                             |
| parameters                       | @10:55, DTW:63.35, pH:7.48, temp:17.1, cond:3.48, turb:19.1, DO:0.15, redox:-153.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:00, DTW:63.35, pH:7.48, temp:17.4, cond:3.4, turb:17.2, DO:0.1, redox:-171.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 63.35                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.48                                                                             |
| Conductivity (mS/cm)             | 3.4                                                                              |
| Turbidity (NTU)                  | 17.2                                                                             |
| Dissolved Oxygen (mg/L)          | 0.1                                                                              |
| Temperature (Degrees Celsius)    | 17.4                                                                             |
| Redox (ORP mV)                   | -171.4                                                                           |
| parameters                       | @11:00, DTW:63.35, pH:7.48, temp:17.4, cond:3.4, turb:17.2, DO:0.1, redox:-171.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:05, DTW:63.35, pH:7.5, temp:17.2, cond:3.42, turb:12.1, DO:0.07, redox:-188.6**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:05                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 63.35                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 7.5                                                                               |
| Conductivity (mS/cm)             | 3.42                                                                              |
| Turbidity (NTU)                  | 12.1                                                                              |
| Dissolved Oxygen (mg/L)          | 0.07                                                                              |
| Temperature (Degrees Celsius)    | 17.2                                                                              |
| Redox (ORP mV)                   | -188.6                                                                            |
| parameters                       | @11:05, DTW:63.35, pH:7.5, temp:17.2, cond:3.42, turb:12.1, DO:0.07, redox:-188.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:10, DTW:63.35, pH:7.57, temp:16.5, cond:3.45, turb:9.8, DO:0.05, redox:-202.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 63.35                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 7.57                                                                              |
| Conductivity (mS/cm)             | 3.45                                                                              |
| Turbidity (NTU)                  | 9.8                                                                               |
| Dissolved Oxygen (mg/L)          | 0.05                                                                              |
| Temperature (Degrees Celsius)    | 16.5                                                                              |
| Redox (ORP mV)                   | -202.5                                                                            |
| parameters                       | @11:10, DTW:63.35, pH:7.57, temp:16.5, cond:3.45, turb:9.8, DO:0.05, redox:-202.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:15, DTW:63.35, pH:7.7, temp:16.7, cond:3.46, turb:8.2, DO:0.04, redox:-225.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 63.35 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7.7   |
| Conductivity (mS/cm)             | 3.46  |
| Turbidity (NTU)                  | 8.2   |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.04                                                                             |
| Temperature (Degrees Celsius) | 16.7                                                                             |
| Redox (ORP mV)                | -225.6                                                                           |
| parameters                    | @11:15, DTW:63.35, pH:7.7, temp:16.7, cond:3.46, turb:8.2, DO:0.04, redox:-225.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:20, DTW:63.35, pH:7.64, temp:16.9, cond:3.48, turb:7.2, DO:0.03, redox:-228.6**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 63.35                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 7.64                                                                              |
| Conductivity (mS/cm)             | 3.48                                                                              |
| Turbidity (NTU)                  | 7.2                                                                               |
| Dissolved Oxygen (mg/L)          | 0.03                                                                              |
| Temperature (Degrees Celsius)    | 16.9                                                                              |
| Redox (ORP mV)                   | -228.6                                                                            |
| parameters                       | @11:20, DTW:63.35, pH:7.64, temp:16.9, cond:3.48, turb:7.2, DO:0.03, redox:-228.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:25, DTW:63.35, pH:7.64, temp:16.9, cond:3.5, turb:7.01, DO:0.03, redox:-230.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 63.35                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 7.64                                                                              |
| Conductivity (mS/cm)             | 3.5                                                                               |
| Turbidity (NTU)                  | 7.01                                                                              |
| Dissolved Oxygen (mg/L)          | 0.03                                                                              |
| Temperature (Degrees Celsius)    | 16.9                                                                              |
| Redox (ORP mV)                   | -230.1                                                                            |
| parameters                       | @11:25, DTW:63.35, pH:7.64, temp:16.9, cond:3.5, turb:7.01, DO:0.03, redox:-230.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 11:25       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 10000       |
| Well Volumes Purged           | 0.08        |

## **Sample Information**

|               |       |
|---------------|-------|
| Sample Time   | 11:30 |
| Color         | Clear |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of stylized, overlapping loops and a long horizontal stroke at the end.

Signed 2019-06-10 14:36:34 UTC

## 2019-06-07, MW-18-88, MW-18-88

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-07 09:12:02 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-07 09:36:51 EDT by Christine Gregg |
| Location                                                                                          | 42.7451657, -84.58270909                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-07                                 |
| Well Identification                                                                               | MW-18-88                                   |
| Well ID                                                                                           | MW-18-88                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Sunny, 80F                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 4.89          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 15.08         |
| Water Column                                                                                                                                                                                                                                           | 10.19         |
| Gallons in Well                                                                                                                                                                                                                                        | 1.66          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 12.58         |
| Purge Start                                                                                                                                                                                                                                            | 09:15         |

### @09:20, DTW:5.06, pH:7.15, temp:14.5, cond:0.53, turb:4.72, DO:0.28, redox:217.4

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 09:20                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 5.06                                                                             |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 7.15                                                                             |
| Conductivity (mS/cm)          | 0.53                                                                             |
| Turbidity (NTU)               | 4.72                                                                             |
| Dissolved Oxygen (mg/L)       | 0.28                                                                             |
| Temperature (Degrees Celsius) | 14.5                                                                             |
| Redox (ORP mV)                | 217.4                                                                            |
| parameters                    | @09:20, DTW:5.06, pH:7.15, temp:14.5, cond:0.53, turb:4.72, DO:0.28, redox:217.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:25, DTW:5.06, pH:7.12, temp:14.5, cond:0.53, turb:3.03, DO:0.25, redox:218**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 09:25                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 5.06                                                                           |
| Milliliters Purged (total)       | 2000                                                                           |
| pH                               | 7.12                                                                           |
| Conductivity (mS/cm)             | 0.53                                                                           |
| Turbidity (NTU)                  | 3.03                                                                           |
| Dissolved Oxygen (mg/L)          | 0.25                                                                           |
| Temperature (Degrees Celsius)    | 14.5                                                                           |
| Redox (ORP mV)                   | 218                                                                            |
| parameters                       | @09:25, DTW:5.06, pH:7.12, temp:14.5, cond:0.53, turb:3.03, DO:0.25, redox:218 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:30, DTW:5.06, pH:7.11, temp:14.6, cond:0.53, turb:1.87, DO:0.23, redox:218.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 5.06                                                                             |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.11                                                                             |
| Conductivity (mS/cm)             | 0.53                                                                             |
| Turbidity (NTU)                  | 1.87                                                                             |
| Dissolved Oxygen (mg/L)          | 0.23                                                                             |
| Temperature (Degrees Celsius)    | 14.6                                                                             |
| Redox (ORP mV)                   | 218.6                                                                            |
| parameters                       | @09:30, DTW:5.06, pH:7.11, temp:14.6, cond:0.53, turb:1.87, DO:0.23, redox:218.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:35, DTW:5.06, pH:7.11, temp:14.6, cond:0.53, turb:1.43, DO:0.13, redox:218.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 5.06  |
| Milliliters Purged (total)       | 4000  |
| pH                               | 7.11  |
| Conductivity (mS/cm)             | 0.53  |
| Turbidity (NTU)                  | 1.43  |
| Dissolved Oxygen (mg/L)          | 0.13  |
| Temperature (Degrees Celsius)    | 14.6  |
| Redox (ORP mV)                   | 218.8 |

parameters

@09:35, DTW:5.06, pH:7.11, temp:14.6, cond:0.53, turb:1.43, DO:0.13, redox:218.8

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 09:45 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 09:40 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                |                |
|----------------|----------------|
| Container Type | 250 mL Plastic |
|----------------|----------------|

|                      |   |
|----------------------|---|
| Number of Containers | 2 |
|----------------------|---|

|              |      |
|--------------|------|
| Preservative | None |
|--------------|------|

### Well Information

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |    |
|------------------------|----|
| Well Locked at Arrival | No |
|------------------------|----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature

A handwritten signature in black ink, appearing to be 'Andrew H.', written in a cursive style.

Signed 2019-06-07 13:13:39 UTC

## 2019-08-29, MW-18-88

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 19:47:07 UTC by Gary Schafer |
| Updated                                                                                           | 2020-03-31 19:55:17 UTC by Gary Schafer |
| Location                                                                                          | 42.5031605875515, -83.4425230790707     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-08-29                              |
| Well ID                                                                                           | MW-18-88                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 8.02          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 15.05         |
| Water Column                                                                                                                                                                                                                                              | 7.03          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                               | 15:25         |

### @15:30, DTW:8.19, pH:3.51, temp:21.6, cond:0.64, turb:34.7, DO:0.18, redox:134.7

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 15:30                                                                            |
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 8.19                                                                             |
| pH                            | 3.51                                                                             |
| Conductivity (mS/cm)          | 0.64                                                                             |
| Turbidity (NTU)               | 34.7                                                                             |
| Dissolved Oxygen (mg/L)       | 0.18                                                                             |
| Temperature (Degrees Celsius) | 21.6                                                                             |
| Redox (ORP mV)                | 134.7                                                                            |
| parameters                    | @15:30, DTW:8.19, pH:3.51, temp:21.6, cond:0.64, turb:34.7, DO:0.18, redox:134.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:35, DTW:8.19, pH:3.42, temp:21.5, cond:0.64, turb:29.9, DO:0.15, redox:142.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 8.19  |
| pH                               | 3.42  |
| Conductivity (mS/cm)             | 0.64  |
| Turbidity (NTU)                  | 29.9  |



|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.15                                                                             |
| Temperature (Degrees Celsius) | 21.5                                                                             |
| Redox (ORP mV)                | 142.1                                                                            |
| parameters                    | @15:35, DTW:8.19, pH:3.42, temp:21.5, cond:0.64, turb:29.9, DO:0.15, redox:142.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:40, DTW:8.19, pH:3.39, temp:21.4, cond:0.64, turb:19, DO:0.18, redox:146.3**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:40                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 8.19                                                                           |
| pH                               | 3.39                                                                           |
| Conductivity (mS/cm)             | 0.64                                                                           |
| Turbidity (NTU)                  | 19                                                                             |
| Dissolved Oxygen (mg/L)          | 0.18                                                                           |
| Temperature (Degrees Celsius)    | 21.4                                                                           |
| Redox (ORP mV)                   | 146.3                                                                          |
| parameters                       | @15:40, DTW:8.19, pH:3.39, temp:21.4, cond:0.64, turb:19, DO:0.18, redox:146.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:45, DTW:8.2, pH:3.38, temp:21.4, cond:0.64, turb:17.3, DO:0.2, redox:147.2**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:45                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 8.2                                                                            |
| pH                               | 3.38                                                                           |
| Conductivity (mS/cm)             | 0.64                                                                           |
| Turbidity (NTU)                  | 17.3                                                                           |
| Dissolved Oxygen (mg/L)          | 0.2                                                                            |
| Temperature (Degrees Celsius)    | 21.4                                                                           |
| Redox (ORP mV)                   | 147.2                                                                          |
| parameters                       | @15:45, DTW:8.2, pH:3.38, temp:21.4, cond:0.64, turb:17.3, DO:0.2, redox:147.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:50, DTW:8.2, pH:3.37, temp:21.3, cond:0.64, turb:10.5, DO:0.26, redox:148.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 8.2   |
| pH                               | 3.37  |
| Conductivity (mS/cm)             | 0.64  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Turbidity (NTU)               | 10.5                                                                            |
| Dissolved Oxygen (mg/L)       | 0.26                                                                            |
| Temperature (Degrees Celsius) | 21.3                                                                            |
| Redox (ORP mV)                | 148.2                                                                           |
| parameters                    | @15:50, DTW:8.2, pH:3.37, temp:21.3, cond:0.64, turb:10.5, DO:0.26, redox:148.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:55, DTW:8.2, pH:3.35, temp:21.5, cond:0.64, turb:4.26, DO:0.27, redox:151.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:55                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 8.2                                                                             |
| pH                               | 3.35                                                                            |
| Conductivity (mS/cm)             | 0.64                                                                            |
| Turbidity (NTU)                  | 4.26                                                                            |
| Dissolved Oxygen (mg/L)          | 0.27                                                                            |
| Temperature (Degrees Celsius)    | 21.5                                                                            |
| Redox (ORP mV)                   | 151.9                                                                           |
| parameters                       | @15:55, DTW:8.2, pH:3.35, temp:21.5, cond:0.64, turb:4.26, DO:0.27, redox:151.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:00, DTW:8.2, pH:3.34, temp:21.5, cond:0.64, turb:2.65, DO:0.28, redox:152**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 16:00                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 8.2                                                                           |
| pH                               | 3.34                                                                          |
| Conductivity (mS/cm)             | 0.64                                                                          |
| Turbidity (NTU)                  | 2.65                                                                          |
| Dissolved Oxygen (mg/L)          | 0.28                                                                          |
| Temperature (Degrees Celsius)    | 21.5                                                                          |
| Redox (ORP mV)                   | 152                                                                           |
| parameters                       | @16:00, DTW:8.2, pH:3.34, temp:21.5, cond:0.64, turb:2.65, DO:0.28, redox:152 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 16:05   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 1.5     |

### **Sample Information**

|             |       |
|-------------|-------|
| Sample Time | 16:02 |
|-------------|-------|

## Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW 18-88 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature

A handwritten signature in black ink, reading "Gary Schuler". The signature is written in a cursive, flowing style. The first name "Gary" is on the top line, and the last name "Schuler" is on the bottom line, with the two names connected by a large, sweeping loop.

Signed 2020-03-31 19:55:15 UTC

## 2019-12-05, MW-18-88

|                                                                                                   |                                           |
|---------------------------------------------------------------------------------------------------|-------------------------------------------|
| Created                                                                                           | 2019-12-05 20:10:04 UTC by Melissa Weaver |
| Updated                                                                                           | 2019-12-05 21:12:24 UTC by Melissa Weaver |
| Location                                                                                          | 42.7451640693869, -84.5826717932565       |
| Project Number                                                                                    | 30006870                                  |
| Project Name / Location                                                                           | RACER Lansing, MI                         |
| Sampler Name                                                                                      | Melissa Weaver                            |
| Date                                                                                              | 2019-12-05                                |
| Well ID                                                                                           | MW-18-88                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                       |
| Weather                                                                                           | 37 cloudy                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 4.4           |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 15            |
| Water Column                                                                                                                                                                                                                                                 | 10.6          |
| Gallons in Well                                                                                                                                                                                                                                              | 1.72          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 12.5          |
| Purge Start                                                                                                                                                                                                                                                  | 15:15         |

### @15:18, DTW:4.63, pH:7.78, temp:11, cond:0.6, turb:18.2, DO:0.81, redox:9.8

|                               |                                                                             |
|-------------------------------|-----------------------------------------------------------------------------|
| Reading Time                  | 15:18                                                                       |
| Rate (mL/min)                 | 200                                                                         |
| Depth to Water (ft)           | 4.63                                                                        |
| pH                            | 7.78                                                                        |
| Conductivity (mS/cm)          | 0.6                                                                         |
| Turbidity (NTU)               | 18.2                                                                        |
| Dissolved Oxygen (mg/L)       | 0.81                                                                        |
| Temperature (Degrees Celsius) | 11                                                                          |
| Redox (ORP mV)                | 9.8                                                                         |
| parameters                    | @15:18, DTW:4.63, pH:7.78, temp:11, cond:0.6, turb:18.2, DO:0.81, redox:9.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:23, DTW:4.63, pH:7.38, temp:11, cond:0.6, turb:8.84, DO:0.6, redox:31.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:23 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                             |
|-------------------------------|-----------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                         |
| Depth to Water (ft)           | 4.63                                                                        |
| pH                            | 7.38                                                                        |
| Conductivity (mS/cm)          | 0.6                                                                         |
| Turbidity (NTU)               | 8.84                                                                        |
| Dissolved Oxygen (mg/L)       | 0.6                                                                         |
| Temperature (Degrees Celsius) | 11                                                                          |
| Redox (ORP mV)                | 31.5                                                                        |
| parameters                    | @15:23, DTW:4.63, pH:7.38, temp:11, cond:0.6, turb:8.84, DO:0.6, redox:31.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:28, DTW:4.63, pH:7.2, temp:11, cond:0.59, turb:3.82, DO:0.48, redox:37.1**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 15:28                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 4.63                                                                         |
| pH                               | 7.2                                                                          |
| Conductivity (mS/cm)             | 0.59                                                                         |
| Turbidity (NTU)                  | 3.82                                                                         |
| Dissolved Oxygen (mg/L)          | 0.48                                                                         |
| Temperature (Degrees Celsius)    | 11                                                                           |
| Redox (ORP mV)                   | 37.1                                                                         |
| parameters                       | @15:28, DTW:4.63, pH:7.2, temp:11, cond:0.59, turb:3.82, DO:0.48, redox:37.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:33, DTW:4.63, pH:7.12, temp:11.1, cond:0.59, turb:3.45, DO:0.45, redox:38.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:33                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 4.63                                                                            |
| pH                               | 7.12                                                                            |
| Conductivity (mS/cm)             | 0.59                                                                            |
| Turbidity (NTU)                  | 3.45                                                                            |
| Dissolved Oxygen (mg/L)          | 0.45                                                                            |
| Temperature (Degrees Celsius)    | 11.1                                                                            |
| Redox (ORP mV)                   | 38.8                                                                            |
| parameters                       | @15:33, DTW:4.63, pH:7.12, temp:11.1, cond:0.59, turb:3.45, DO:0.45, redox:38.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:38, DTW:4.64, pH:7.08, temp:11.1, cond:0.59, turb:2.94, DO:0.4, redox:41.9**

|              |       |
|--------------|-------|
| Reading Time | 15:38 |
|--------------|-------|

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 4.64                                                                           |
| pH                               | 7.08                                                                           |
| Conductivity (mS/cm)             | 0.59                                                                           |
| Turbidity (NTU)                  | 2.94                                                                           |
| Dissolved Oxygen (mg/L)          | 0.4                                                                            |
| Temperature (Degrees Celsius)    | 11.1                                                                           |
| Redox (ORP mV)                   | 41.9                                                                           |
| parameters                       | @15:38, DTW:4.64, pH:7.08, temp:11.1, cond:0.59, turb:2.94, DO:0.4, redox:41.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:43, DTW:4.63, pH:7.06, temp:11.1, cond:0.58, turb:1.36, DO:0.35, redox:44.6**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:43                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 4.63                                                                            |
| pH                               | 7.06                                                                            |
| Conductivity (mS/cm)             | 0.58                                                                            |
| Turbidity (NTU)                  | 1.36                                                                            |
| Dissolved Oxygen (mg/L)          | 0.35                                                                            |
| Temperature (Degrees Celsius)    | 11.1                                                                            |
| Redox (ORP mV)                   | 44.6                                                                            |
| parameters                       | @15:43, DTW:4.63, pH:7.06, temp:11.1, cond:0.58, turb:1.36, DO:0.35, redox:44.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:48, DTW:4.63, pH:7.05, temp:11.2, cond:0.6, turb:0.02, DO:0.31, redox:46.6**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:48                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 4.63                                                                           |
| pH                               | 7.05                                                                           |
| Conductivity (mS/cm)             | 0.6                                                                            |
| Turbidity (NTU)                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)          | 0.31                                                                           |
| Temperature (Degrees Celsius)    | 11.2                                                                           |
| Redox (ORP mV)                   | 46.6                                                                           |
| parameters                       | @15:48, DTW:4.63, pH:7.05, temp:11.2, cond:0.6, turb:0.02, DO:0.31, redox:46.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:53, DTW:4.64, pH:7.04, temp:0.3, cond:0.59, turb:0.02, DO:, redox:48.5**

|                                  |                                                                            |
|----------------------------------|----------------------------------------------------------------------------|
| Reading Time                     | 15:53                                                                      |
| Minutes Elapsed between readings | 5                                                                          |
| Rate (mL/min)                    | 200                                                                        |
| Depth to Water (ft)              | 4.64                                                                       |
| pH                               | 7.04                                                                       |
| Conductivity (mS/cm)             | 0.59                                                                       |
| Turbidity (NTU)                  | 0.02                                                                       |
| Temperature (Degrees Celsius)    | 0.3                                                                        |
| Redox (ORP mV)                   | 48.5                                                                       |
| parameters                       | @15:53, DTW:4.64, pH:7.04, temp:0.3, cond:0.59, turb:0.02, DO:, redox:48.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:58, DTW:4.64, pH:7.04, temp:11.1, cond:0.59, turb:0.02, DO:0.28, redox:50.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:58                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 4.64                                                                            |
| pH                               | 7.04                                                                            |
| Conductivity (mS/cm)             | 0.59                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.28                                                                            |
| Temperature (Degrees Celsius)    | 11.1                                                                            |
| Redox (ORP mV)                   | 50.2                                                                            |
| parameters                       | @15:58, DTW:4.64, pH:7.04, temp:11.1, cond:0.59, turb:0.02, DO:0.28, redox:50.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 15:58 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:58 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of stylized, cursive letters that appear to be 'M' and 'L'.

Signed 2019-12-05 20:21:50 UTC

---



## 2019-06-07, MW-18-89, MW-18-89

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-07 10:32:13 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-07 11:16:40 EDT by Christine Gregg |
| Location                                                                                          | 42.74595863, -84.5845117                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-07                                 |
| Well Identification                                                                               | MW-18-89                                   |
| Well ID                                                                                           | MW-18-89                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | Dup-06                                     |
| Weather                                                                                           | Sunny, 80F                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 5.51          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 15.69         |
| Water Column                                                                                                                                                                                                                                               | 10.18         |
| Gallons in Well                                                                                                                                                                                                                                            | 1.65          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                   | 13.19         |
| Purge Start                                                                                                                                                                                                                                                | 10:30         |

### @10:35, DTW:6.11, pH:8.18, temp:15.9, cond:0.51, turb:3.31, DO:0.56, redox:129.8

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 10:35                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 6.11                                                                             |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 8.18                                                                             |
| Conductivity (mS/cm)          | 0.51                                                                             |
| Turbidity (NTU)               | 3.31                                                                             |
| Dissolved Oxygen (mg/L)       | 0.56                                                                             |
| Temperature (Degrees Celsius) | 15.9                                                                             |
| Redox (ORP mV)                | 129.8                                                                            |
| parameters                    | @10:35, DTW:6.11, pH:8.18, temp:15.9, cond:0.51, turb:3.31, DO:0.56, redox:129.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:40, DTW:6.4, pH:8.14, temp:15.5, cond:0.494, turb:2.93, DO:0.24, redox:93.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 6.4                                                                             |
| Milliliters Purged (total)       | 2000                                                                            |
| pH                               | 8.14                                                                            |
| Conductivity (mS/cm)             | 0.494                                                                           |
| Turbidity (NTU)                  | 2.93                                                                            |
| Dissolved Oxygen (mg/L)          | 0.24                                                                            |
| Temperature (Degrees Celsius)    | 15.5                                                                            |
| Redox (ORP mV)                   | 93.1                                                                            |
| parameters                       | @10:40, DTW:6.4, pH:8.14, temp:15.5, cond:0.494, turb:2.93, DO:0.24, redox:93.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:45, DTW:6.75, pH:8.16, temp:15.1, cond:0.467, turb:2.45, DO:0.1, redox:40.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 6.75                                                                            |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 8.16                                                                            |
| Conductivity (mS/cm)             | 0.467                                                                           |
| Turbidity (NTU)                  | 2.45                                                                            |
| Dissolved Oxygen (mg/L)          | 0.1                                                                             |
| Temperature (Degrees Celsius)    | 15.1                                                                            |
| Redox (ORP mV)                   | 40.1                                                                            |
| parameters                       | @10:45, DTW:6.75, pH:8.16, temp:15.1, cond:0.467, turb:2.45, DO:0.1, redox:40.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:50, DTW:6.89, pH:8.16, temp:15.2, cond:0.462, turb:2.21, DO:0.1, redox:32.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 6.89  |
| Milliliters Purged (total)       | 4000  |
| pH                               | 8.16  |
| Conductivity (mS/cm)             | 0.462 |
| Turbidity (NTU)                  | 2.21  |
| Dissolved Oxygen (mg/L)          | 0.1   |
| Temperature (Degrees Celsius)    | 15.2  |
| Redox (ORP mV)                   | 32.5  |

parameters

@10:50, DTW:6.89, pH:8.16, temp:15.2, cond:0.462, turb:2.21, DO:0.1, redox:32.5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:55, DTW:7.14, pH:8.15, temp:15.1, cond:0.46, turb:1.9, DO:0.09, redox:31.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 7.14  |
| Milliliters Purged (total)       | 5000  |
| pH                               | 8.15  |
| Conductivity (mS/cm)             | 0.46  |
| Turbidity (NTU)                  | 1.9   |
| Dissolved Oxygen (mg/L)          | 0.09  |
| Temperature (Degrees Celsius)    | 15.1  |
| Redox (ORP mV)                   | 31.1  |

parameters

@10:55, DTW:7.14, pH:8.15, temp:15.1, cond:0.46, turb:1.9, DO:0.09, redox:31.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:00, DTW:7.24, pH:8.14, temp:15.3, cond:0.457, turb:1.53, DO:0.1, redox:29.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 7.24  |
| Milliliters Purged (total)       | 6000  |
| pH                               | 8.14  |
| Conductivity (mS/cm)             | 0.457 |
| Turbidity (NTU)                  | 1.53  |
| Dissolved Oxygen (mg/L)          | 0.1   |
| Temperature (Degrees Celsius)    | 15.3  |
| Redox (ORP mV)                   | 29.5  |

parameters

@11:00, DTW:7.24, pH:8.14, temp:15.3, cond:0.457, turb:1.53, DO:0.1, redox:29.5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 11:15 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:05 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                      |                |
|----------------------|----------------|
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | No   |
| Well Locked at Departure | Yes  |
| Signature                |      |

A handwritten signature in black ink, appearing to read "Aunt WJ", is centered on the page.

Signed 2019-06-07 14:34:05 UTC

## 2019-08-28, MW-18-89

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 18:11:04 UTC by Gary Schafer |
| Updated                                                                                           | 2020-03-31 18:43:37 UTC by Gary Schafer |
| Location                                                                                          | 42.5033395411843, -83.4426162020149     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-08-28                              |
| Well ID                                                                                           | MW-18-89                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Sun clouds temp 72                      |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 10.33         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 15.7          |
| Water Column                                                                                                                                                                                                                                               | 5.37          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                | 11:25         |

### @11:30, DTW:11.56, pH:6.91, temp:20.4, cond:0.73, turb:86.7, DO:0.17, redox:35.3

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 11:30                                                                            |
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 11.56                                                                            |
| pH                            | 6.91                                                                             |
| Conductivity (mS/cm)          | 0.73                                                                             |
| Turbidity (NTU)               | 86.7                                                                             |
| Dissolved Oxygen (mg/L)       | 0.17                                                                             |
| Temperature (Degrees Celsius) | 20.4                                                                             |
| Redox (ORP mV)                | 35.3                                                                             |
| parameters                    | @11:30, DTW:11.56, pH:6.91, temp:20.4, cond:0.73, turb:86.7, DO:0.17, redox:35.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:35, DTW:12.7, pH:6.97, temp:20.1, cond:0.68, turb:94.9, DO:0.07, redox:36.6

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 12.7  |
| pH                               | 6.97  |
| Conductivity (mS/cm)             | 0.68  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Turbidity (NTU)               | 94.9                                                                            |
| Dissolved Oxygen (mg/L)       | 0.07                                                                            |
| Temperature (Degrees Celsius) | 20.1                                                                            |
| Redox (ORP mV)                | 36.6                                                                            |
| parameters                    | @11:35, DTW:12.7, pH:6.97, temp:20.1, cond:0.68, turb:94.9, DO:0.07, redox:36.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:40, DTW:13.57, pH:6.71, temp:20, cond:0.57, turb:59.6, DO:0.3, redox:49.5**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 11:40                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 13.57                                                                         |
| pH                               | 6.71                                                                          |
| Conductivity (mS/cm)             | 0.57                                                                          |
| Turbidity (NTU)                  | 59.6                                                                          |
| Dissolved Oxygen (mg/L)          | 0.3                                                                           |
| Temperature (Degrees Celsius)    | 20                                                                            |
| Redox (ORP mV)                   | 49.5                                                                          |
| parameters                       | @11:40, DTW:13.57, pH:6.71, temp:20, cond:0.57, turb:59.6, DO:0.3, redox:49.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:45, DTW:14.1, pH:6.5, temp:19.8, cond:0.85, turb:28, DO:6, redox:-19.1**

|                                  |                                                                            |
|----------------------------------|----------------------------------------------------------------------------|
| Reading Time                     | 11:45                                                                      |
| Minutes Elapsed between readings | 5                                                                          |
| Rate (mL/min)                    | 100                                                                        |
| Depth to Water (ft)              | 14.1                                                                       |
| pH                               | 6.5                                                                        |
| Conductivity (mS/cm)             | 0.85                                                                       |
| Turbidity (NTU)                  | 28                                                                         |
| Dissolved Oxygen (mg/L)          | 6                                                                          |
| Temperature (Degrees Celsius)    | 19.8                                                                       |
| Redox (ORP mV)                   | -19.1                                                                      |
| parameters                       | @11:45, DTW:14.1, pH:6.5, temp:19.8, cond:0.85, turb:28, DO:6, redox:-19.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:50, DTW:14.9, pH:6.55, temp:19.4, cond:0.86, turb:63.5, DO:6.67, redox:-19**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 14.9  |
| pH                               | 6.55  |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.86                                                                           |
| Turbidity (NTU)               | 63.5                                                                           |
| Dissolved Oxygen (mg/L)       | 6.67                                                                           |
| Temperature (Degrees Celsius) | 19.4                                                                           |
| Redox (ORP mV)                | -19                                                                            |
| Reading Comments              | Well went dry at 11:54                                                         |
| parameters                    | @11:50, DTW:14.9, pH:6.55, temp:19.4, cond:0.86, turb:63.5, DO:6.67, redox:-19 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:32, DTW:14.25, pH:7.12, temp:21, cond:0.83, turb:28.8, DO:0.3, redox:-21.6

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:32                                                                          |
| Minutes Elapsed between readings | 222                                                                            |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 14.25                                                                          |
| pH                               | 7.12                                                                           |
| Conductivity (mS/cm)             | 0.83                                                                           |
| Turbidity (NTU)                  | 28.8                                                                           |
| Dissolved Oxygen (mg/L)          | 0.3                                                                            |
| Temperature (Degrees Celsius)    | 21                                                                             |
| Redox (ORP mV)                   | -21.6                                                                          |
| Reading Comments                 | Sampled well at 15:37                                                          |
| parameters                       | @15:32, DTW:14.25, pH:7.12, temp:21, cond:0.83, turb:28.8, DO:0.3, redox:-21.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 15:41   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 2       |

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 15:37 |
|-------------|-------|

### Well Information

|                          |                                         |
|--------------------------|-----------------------------------------|
| Well Location            | MW 18-89                                |
| Condition of Well        | Good                                    |
| Well Locked at Arrival   | Yes                                     |
| Well Locked at Departure | Yes                                     |
| Comments                 | Well went dry around 2.0 gal purged out |

Signature

A handwritten signature in black ink, appearing to read "Gary Schatz". The signature is written in a cursive, flowing style with some overlapping letters.

Signed 2020-03-31 18:42:48 UTC

---



## 2019-12-05, MW-18-89

|                                                                                                   |                                           |
|---------------------------------------------------------------------------------------------------|-------------------------------------------|
| Created                                                                                           | 2019-12-05 17:14:07 UTC by Melissa Weaver |
| Updated                                                                                           | 2019-12-06 21:48:37 UTC by Melissa Weaver |
| Location                                                                                          | 42.7459917404156, -84.5845634211642       |
| Project Number                                                                                    | 30006870                                  |
| Project Name / Location                                                                           | RACER Lansing, MI                         |
| Sampler Name                                                                                      | Melissa Weaver                            |
| Date                                                                                              | 2019-12-05                                |
| Well ID                                                                                           | MW-18-89                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                       |
| Weather                                                                                           | 34 cloudy                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 7.54          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 15.6          |
| Water Column                                                                                                                                                                                                                                                 | 8.06          |
| Gallons in Well                                                                                                                                                                                                                                              | 1.31          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 13            |
| Purge Start                                                                                                                                                                                                                                                  | 12:25         |

### @12:25, DTW:7.64, pH:7.7, temp:10.3, cond:0.63, turb:0.02, DO:0.15, redox:77.6

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 12:25                                                                          |
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 7.64                                                                           |
| pH                            | 7.7                                                                            |
| Conductivity (mS/cm)          | 0.63                                                                           |
| Turbidity (NTU)               | 0.02                                                                           |
| Dissolved Oxygen (mg/L)       | 0.15                                                                           |
| Temperature (Degrees Celsius) | 10.3                                                                           |
| Redox (ORP mV)                | 77.6                                                                           |
| parameters                    | @12:25, DTW:7.64, pH:7.7, temp:10.3, cond:0.63, turb:0.02, DO:0.15, redox:77.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:30, DTW:8.2, pH:7.62, temp:10.2, cond:0.63, turb:0.02, DO:0.12, redox:45.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:30 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 8.2                                                                            |
| pH                            | 7.62                                                                           |
| Conductivity (mS/cm)          | 0.63                                                                           |
| Turbidity (NTU)               | 0.02                                                                           |
| Dissolved Oxygen (mg/L)       | 0.12                                                                           |
| Temperature (Degrees Celsius) | 10.2                                                                           |
| Redox (ORP mV)                | 45.3                                                                           |
| parameters                    | @12:30, DTW:8.2, pH:7.62, temp:10.2, cond:0.63, turb:0.02, DO:0.12, redox:45.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:35, DTW:9.38, pH:7.63, temp:10.3, cond:0.63, turb:0.02, DO:0.1, redox:23**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 9.38                                                                         |
| pH                               | 7.63                                                                         |
| Conductivity (mS/cm)             | 0.63                                                                         |
| Turbidity (NTU)                  | 0.02                                                                         |
| Dissolved Oxygen (mg/L)          | 0.1                                                                          |
| Temperature (Degrees Celsius)    | 10.3                                                                         |
| Redox (ORP mV)                   | 23                                                                           |
| parameters                       | @12:35, DTW:9.38, pH:7.63, temp:10.3, cond:0.63, turb:0.02, DO:0.1, redox:23 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:40, DTW:10.62, pH:7.63, temp:10.5, cond:0.63, turb:0.02, DO:0.1, redox:7.9**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:40                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 10.62                                                                          |
| pH                               | 7.63                                                                           |
| Conductivity (mS/cm)             | 0.63                                                                           |
| Turbidity (NTU)                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)          | 0.1                                                                            |
| Temperature (Degrees Celsius)    | 10.5                                                                           |
| Redox (ORP mV)                   | 7.9                                                                            |
| parameters                       | @12:40, DTW:10.62, pH:7.63, temp:10.5, cond:0.63, turb:0.02, DO:0.1, redox:7.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:45, DTW:11.51, pH:7.63, temp:10.7, cond:0.63, turb:0.02, DO:0.31, redox:-3.7**

|              |       |
|--------------|-------|
| Reading Time | 12:45 |
|--------------|-------|

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 11.51                                                                            |
| pH                               | 7.63                                                                             |
| Conductivity (mS/cm)             | 0.63                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.31                                                                             |
| Temperature (Degrees Celsius)    | 10.7                                                                             |
| Redox (ORP mV)                   | -3.7                                                                             |
| parameters                       | @12:45, DTW:11.51, pH:7.63, temp:10.7, cond:0.63, turb:0.02, DO:0.31, redox:-3.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:50, DTW:12.1, pH:7.63, temp:10.7, cond:0.63, turb:0.02, DO:0.4, redox:-11.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:50                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 12.1                                                                            |
| pH                               | 7.63                                                                            |
| Conductivity (mS/cm)             | 0.63                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.4                                                                             |
| Temperature (Degrees Celsius)    | 10.7                                                                            |
| Redox (ORP mV)                   | -11.8                                                                           |
| parameters                       | @12:50, DTW:12.1, pH:7.63, temp:10.7, cond:0.63, turb:0.02, DO:0.4, redox:-11.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:55, DTW:13.35, pH:7.65, temp:11.5, cond:0.63, turb:0.02, DO:0.78, redox:-15.7**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:55                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 13.35                                                                             |
| pH                               | 7.65                                                                              |
| Conductivity (mS/cm)             | 0.63                                                                              |
| Turbidity (NTU)                  | 0.02                                                                              |
| Dissolved Oxygen (mg/L)          | 0.78                                                                              |
| Temperature (Degrees Celsius)    | 11.5                                                                              |
| Redox (ORP mV)                   | -15.7                                                                             |
| parameters                       | @12:55, DTW:13.35, pH:7.65, temp:11.5, cond:0.63, turb:0.02, DO:0.78, redox:-15.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:00, DTW:13.5, pH:7.66, temp:, cond:, turb:, DO:, redox:**

|                                                                                                                                                                                                                                                                                                                                                  |                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 13:00                                                            |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 200                                                              |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 13.5                                                             |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.66                                                             |
| Reading Comments                                                                                                                                                                                                                                                                                                                                 | Well went dry at 1:00 pm, while recording.                       |
| parameters                                                                                                                                                                                                                                                                                                                                       | @13:00, DTW:13.5, pH:7.66, temp:., cond:., turb:., DO:., redox:. |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                  |

### **@13:05, DTW:9.73, pH:7.68, temp:11.5, cond:0.64, turb:27, DO:4.35, redox:-20.8**

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 13:05                                                                          |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                              |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 200                                                                            |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 9.73                                                                           |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.68                                                                           |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 0.64                                                                           |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 27                                                                             |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 4.35                                                                           |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 11.5                                                                           |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -20.8                                                                          |
| Reading Comments                                                                                                                                                                                                                                                                                                                                 | The tube was lowered to the bottom                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @13:05, DTW:9.73, pH:7.68, temp:11.5, cond:0.64, turb:27, DO:4.35, redox:-20.8 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                |

### **@13:10, DTW:9.73, pH:7.71, temp:11.5, cond:0.64, turb:81.5, DO:3.16, redox:-45**

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 13:10                                                                          |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                              |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 200                                                                            |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 9.73                                                                           |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.71                                                                           |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 0.64                                                                           |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 81.5                                                                           |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 3.16                                                                           |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 11.5                                                                           |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -45                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @13:10, DTW:9.73, pH:7.71, temp:11.5, cond:0.64, turb:81.5, DO:3.16, redox:-45 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                |

### **@13:15, DTW:9.73, pH:7.78, temp:11.5, cond:0.65, turb:28.9, DO:3.42, redox:-45**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:15 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 9.73                                                                           |
| pH                            | 7.78                                                                           |
| Conductivity (mS/cm)          | 0.65                                                                           |
| Turbidity (NTU)               | 28.9                                                                           |
| Dissolved Oxygen (mg/L)       | 3.42                                                                           |
| Temperature (Degrees Celsius) | 11.5                                                                           |
| Redox (ORP mV)                | -45                                                                            |
| parameters                    | @13:15, DTW:9.73, pH:7.78, temp:11.5, cond:0.65, turb:28.9, DO:3.42, redox:-45 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:18, DTW:9.73, pH:, temp:, cond:, turb:, DO:, redox:

|                                  |                                                         |
|----------------------------------|---------------------------------------------------------|
| Reading Time                     | 13:18                                                   |
| Minutes Elapsed between readings | 3                                                       |
| Rate (mL/min)                    | 200                                                     |
| Depth to Water (ft)              | 9.73                                                    |
| Reading Comments                 | Well went dry.                                          |
| parameters                       | @13:18, DTW:9.73, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 13:18 |
|-----------|-------|

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 16:26 |
| Color         | Clear |
| Notable odors | None  |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |                                                                                                                                                     |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Well Location            | Plant 3                                                                                                                                             |
| Condition of Well        | Good                                                                                                                                                |
| Well Locked at Arrival   | Yes                                                                                                                                                 |
| Well Locked at Departure | Yes                                                                                                                                                 |
| Comments                 | Water level dropped below Sample depth at 13:00. The sample depth was lowered to the bottom. Well went dry at 15:18. Sample was collected at 16:26. |

Signature

A handwritten signature in black ink, consisting of stylized, cursive letters that appear to be 'M' and 'L'.

Signed 2019-12-05 17:18:38 UTC

---

## 2019-06-07, MW-18-90, MW-18-90

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-07 11:33:19 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-07 12:00:58 EDT by Christine Gregg |
| Location                                                                                          | 42.74587599, -84.58424524                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-07                                 |
| Well Identification                                                                               | MW-18-90                                   |
| Well ID                                                                                           | MW-18-90                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Sunny, 80F                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 9.58          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 23.23         |
| Water Column                                                                                                                                                                                                                                               | 13.65         |
| Gallons in Well                                                                                                                                                                                                                                            | 2.22          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                   | 21.83         |
| Purge Start                                                                                                                                                                                                                                                | 11:30         |

### @11:35, DTW:9.62, pH:12.11, temp:14, cond:1.84, turb:4.73, DO:0.33, redox:-31.1

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 11:35                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 9.62                                                                            |
| Milliliters Purged (total)    | 1000                                                                            |
| pH                            | 12.11                                                                           |
| Conductivity (mS/cm)          | 1.84                                                                            |
| Turbidity (NTU)               | 4.73                                                                            |
| Dissolved Oxygen (mg/L)       | 0.33                                                                            |
| Temperature (Degrees Celsius) | 14                                                                              |
| Redox (ORP mV)                | -31.1                                                                           |
| parameters                    | @11:35, DTW:9.62, pH:12.11, temp:14, cond:1.84, turb:4.73, DO:0.33, redox:-31.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:40, DTW:9.63, pH:12.23, temp:13.3, cond:1.89, turb:2.75, DO:0.12, redox:-214.1**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 11:40                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 9.63                                                                               |
| Milliliters Purged (total)       | 2000                                                                               |
| pH                               | 12.23                                                                              |
| Conductivity (mS/cm)             | 1.89                                                                               |
| Turbidity (NTU)                  | 2.75                                                                               |
| Dissolved Oxygen (mg/L)          | 0.12                                                                               |
| Temperature (Degrees Celsius)    | 13.3                                                                               |
| Redox (ORP mV)                   | -214.1                                                                             |
| parameters                       | @11:40, DTW:9.63, pH:12.23, temp:13.3, cond:1.89, turb:2.75, DO:0.12, redox:-214.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:45, DTW:9.63, pH:12.23, temp:13.4, cond:1.92, turb:2.72, DO:0.09, redox:-265.9**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 11:45                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 9.63                                                                               |
| Milliliters Purged (total)       | 3000                                                                               |
| pH                               | 12.23                                                                              |
| Conductivity (mS/cm)             | 1.92                                                                               |
| Turbidity (NTU)                  | 2.72                                                                               |
| Dissolved Oxygen (mg/L)          | 0.09                                                                               |
| Temperature (Degrees Celsius)    | 13.4                                                                               |
| Redox (ORP mV)                   | -265.9                                                                             |
| parameters                       | @11:45, DTW:9.63, pH:12.23, temp:13.4, cond:1.92, turb:2.72, DO:0.09, redox:-265.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:50, DTW:9.63, pH:12.24, temp:13.5, cond:1.95, turb:1.77, DO:0.07, redox:-296.5**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 11:50  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 200    |
| Depth to Water (ft)              | 9.63   |
| Milliliters Purged (total)       | 4000   |
| pH                               | 12.24  |
| Conductivity (mS/cm)             | 1.95   |
| Turbidity (NTU)                  | 1.77   |
| Dissolved Oxygen (mg/L)          | 0.07   |
| Temperature (Degrees Celsius)    | 13.5   |
| Redox (ORP mV)                   | -296.5 |



parameters

@11:50, DTW:9.63, pH:12.24, temp:13.5, cond:1.95, turb:1.77, DO:0.07, redox:-296.5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:55, DTW:9.63, pH:12.26, temp:13.1, cond:1.96, turb:1.36, DO:0.07, redox:-281.7**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 11:55  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 200    |
| Depth to Water (ft)              | 9.63   |
| Milliliters Purged (total)       | 5000   |
| pH                               | 12.26  |
| Conductivity (mS/cm)             | 1.96   |
| Turbidity (NTU)                  | 1.36   |
| Dissolved Oxygen (mg/L)          | 0.07   |
| Temperature (Degrees Celsius)    | 13.1   |
| Redox (ORP mV)                   | -281.7 |

parameters

@11:55, DTW:9.63, pH:12.26, temp:13.1, cond:1.96, turb:1.36, DO:0.07, redox:-281.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 12:05 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:00 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | No   |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to read "André" followed by a stylized flourish.

Signed 2019-06-07 15:34:46 UTC

---

## 2019-08-28, MW-18-90

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 18:23:39 UTC by Gary Schafer |
| Updated                                                                                           | 2020-03-31 18:31:24 UTC by Gary Schafer |
| Location                                                                                          | 42.503262343856, -83.4424688481571      |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-08-28                              |
| Well ID                                                                                           | MW-18-90                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Sun clouds temp 72                      |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 11.73         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 23.25         |
| Water Column                                                                                                                                                                                                                                               | 11.52         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                | 12:53         |

### @12:55, DTW:11.8, pH:10.73, temp:19.1, cond:2.16, turb:27.9, DO:0.17, redox:-37.7

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 12:55                                                                             |
| Rate (mL/min)                 | 100                                                                               |
| Depth to Water (ft)           | 11.8                                                                              |
| pH                            | 10.73                                                                             |
| Conductivity (mS/cm)          | 2.16                                                                              |
| Turbidity (NTU)               | 27.9                                                                              |
| Dissolved Oxygen (mg/L)       | 0.17                                                                              |
| Temperature (Degrees Celsius) | 19.1                                                                              |
| Redox (ORP mV)                | -37.7                                                                             |
| parameters                    | @12:55, DTW:11.8, pH:10.73, temp:19.1, cond:2.16, turb:27.9, DO:0.17, redox:-37.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:00, DTW:11.8, pH:10.73, temp:19.5, cond:2.18, turb:11.9, DO:0.19, redox:-54.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 11.8  |
| pH                               | 10.73 |
| Conductivity (mS/cm)             | 2.18  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Turbidity (NTU)               | 11.9                                                                              |
| Dissolved Oxygen (mg/L)       | 0.19                                                                              |
| Temperature (Degrees Celsius) | 19.5                                                                              |
| Redox (ORP mV)                | -54.7                                                                             |
| parameters                    | @13:00, DTW:11.8, pH:10.73, temp:19.5, cond:2.18, turb:11.9, DO:0.19, redox:-54.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:05, DTW:11.8, pH:10.69, temp:19.9, cond:2.27, turb:7.58, DO:0.16, redox:-69.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:05                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 11.8                                                                              |
| pH                               | 10.69                                                                             |
| Conductivity (mS/cm)             | 2.27                                                                              |
| Turbidity (NTU)                  | 7.58                                                                              |
| Dissolved Oxygen (mg/L)          | 0.16                                                                              |
| Temperature (Degrees Celsius)    | 19.9                                                                              |
| Redox (ORP mV)                   | -69.9                                                                             |
| parameters                       | @13:05, DTW:11.8, pH:10.69, temp:19.9, cond:2.27, turb:7.58, DO:0.16, redox:-69.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:10, DTW:11.8, pH:10.62, temp:19.2, cond:2.34, turb:4.2, DO:0.13, redox:-76.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 11.8                                                                             |
| pH                               | 10.62                                                                            |
| Conductivity (mS/cm)             | 2.34                                                                             |
| Turbidity (NTU)                  | 4.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.13                                                                             |
| Temperature (Degrees Celsius)    | 19.2                                                                             |
| Redox (ORP mV)                   | -76.8                                                                            |
| parameters                       | @13:10, DTW:11.8, pH:10.62, temp:19.2, cond:2.34, turb:4.2, DO:0.13, redox:-76.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:15, DTW:11.8, pH:10.54, temp:19.4, cond:2.35, turb:3.76, DO:0.11, redox:-112.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 11.8  |
| pH                               | 10.54 |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 2.35                                                                               |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 3.76                                                                               |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.11                                                                               |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 19.4                                                                               |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -112.6                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @13:15, DTW:11.8, pH:10.54, temp:19.4, cond:2.35, turb:3.76, DO:0.11, redox:-112.6 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                    |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 13:20                                                                              |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Gallons                                                                            |
| Total Gallons Purged                                                                                                                                                                                                                                                                                                                             | 0.5                                                                                |

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 13:17 |
|-------------|-------|

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW 18-90 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature



Signed 2020-03-31 18:31:22 UTC

## 2019-12-05, MW-18-90

|                                                                                                   |                                           |
|---------------------------------------------------------------------------------------------------|-------------------------------------------|
| Created                                                                                           | 2019-12-05 18:55:25 UTC by Melissa Weaver |
| Updated                                                                                           | 2019-12-05 19:56:06 UTC by Melissa Weaver |
| Location                                                                                          | 42.7458694065388, -84.5841515344424       |
| Project Number                                                                                    | 30006870                                  |
| Project Name / Location                                                                           | RACER Lansing, MI                         |
| Sampler Name                                                                                      | Melissa Weaver                            |
| Date                                                                                              | 2019-12-05                                |
| Well ID                                                                                           | MW-18-90                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                       |
| Weather                                                                                           | 37 cloudy                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 9.65          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 23.25         |
| Water Column                                                                                                                                                                                                                                                 | 13.6          |
| Gallons in Well                                                                                                                                                                                                                                              | 2.21          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 20.75         |
| Purge Start                                                                                                                                                                                                                                                  | 13:55         |

### @13:55, DTW:9.73, pH:11.96, temp:13.2, cond:2.32, turb:3.08, DO:1.05, redox:-36.3

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 13:55                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 9.73                                                                              |
| pH                            | 11.96                                                                             |
| Conductivity (mS/cm)          | 2.32                                                                              |
| Turbidity (NTU)               | 3.08                                                                              |
| Dissolved Oxygen (mg/L)       | 1.05                                                                              |
| Temperature (Degrees Celsius) | 13.2                                                                              |
| Redox (ORP mV)                | -36.3                                                                             |
| parameters                    | @13:55, DTW:9.73, pH:11.96, temp:13.2, cond:2.32, turb:3.08, DO:1.05, redox:-36.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:00, DTW:9.73, pH:12.25, temp:13.3, cond:2.44, turb:2.91, DO:0.69, redox:-66.8

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:00 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 9.73                                                                              |
| pH                            | 12.25                                                                             |
| Conductivity (mS/cm)          | 2.44                                                                              |
| Turbidity (NTU)               | 2.91                                                                              |
| Dissolved Oxygen (mg/L)       | 0.69                                                                              |
| Temperature (Degrees Celsius) | 13.3                                                                              |
| Redox (ORP mV)                | -66.8                                                                             |
| parameters                    | @14:00, DTW:9.73, pH:12.25, temp:13.3, cond:2.44, turb:2.91, DO:0.69, redox:-66.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:05, DTW:9.73, pH:12.32, temp:13.1, cond:2.44, turb:3.24, DO:0.5, redox:-83.9**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:05                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 9.73                                                                             |
| pH                               | 12.32                                                                            |
| Conductivity (mS/cm)             | 2.44                                                                             |
| Turbidity (NTU)                  | 3.24                                                                             |
| Dissolved Oxygen (mg/L)          | 0.5                                                                              |
| Temperature (Degrees Celsius)    | 13.1                                                                             |
| Redox (ORP mV)                   | -83.9                                                                            |
| parameters                       | @14:05, DTW:9.73, pH:12.32, temp:13.1, cond:2.44, turb:3.24, DO:0.5, redox:-83.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:10, DTW:9.73, pH:12.34, temp:13.3, cond:2.46, turb:3.47, DO:0.4, redox:-92.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 9.73                                                                             |
| pH                               | 12.34                                                                            |
| Conductivity (mS/cm)             | 2.46                                                                             |
| Turbidity (NTU)                  | 3.47                                                                             |
| Dissolved Oxygen (mg/L)          | 0.4                                                                              |
| Temperature (Degrees Celsius)    | 13.3                                                                             |
| Redox (ORP mV)                   | -92.7                                                                            |
| parameters                       | @14:10, DTW:9.73, pH:12.34, temp:13.3, cond:2.46, turb:3.47, DO:0.4, redox:-92.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:15, DTW:9.73, pH:12.34, temp:13.2, cond:2.47, turb:2.67, DO:0.44, redox:-97.2**

|              |       |
|--------------|-------|
| Reading Time | 14:15 |
|--------------|-------|

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 9.73                                                                              |
| pH                               | 12.34                                                                             |
| Conductivity (mS/cm)             | 2.47                                                                              |
| Turbidity (NTU)                  | 2.67                                                                              |
| Dissolved Oxygen (mg/L)          | 0.44                                                                              |
| Temperature (Degrees Celsius)    | 13.2                                                                              |
| Redox (ORP mV)                   | -97.2                                                                             |
| parameters                       | @14:15, DTW:9.73, pH:12.34, temp:13.2, cond:2.47, turb:2.67, DO:0.44, redox:-97.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:20, DTW:9.73, pH:12.35, temp:13.1, cond:2.51, turb:0.02, DO:0.41, redox:-101.7**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 14:20                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 9.73                                                                               |
| pH                               | 12.35                                                                              |
| Conductivity (mS/cm)             | 2.51                                                                               |
| Turbidity (NTU)                  | 0.02                                                                               |
| Dissolved Oxygen (mg/L)          | 0.41                                                                               |
| Temperature (Degrees Celsius)    | 13.1                                                                               |
| Redox (ORP mV)                   | -101.7                                                                             |
| parameters                       | @14:20, DTW:9.73, pH:12.35, temp:13.1, cond:2.51, turb:0.02, DO:0.41, redox:-101.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:25, DTW:9.73, pH:12.37, temp:12.6, cond:2.52, turb:0.02, DO:0.38, redox:-106.1**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 14:25                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 9.73                                                                               |
| pH                               | 12.37                                                                              |
| Conductivity (mS/cm)             | 2.52                                                                               |
| Turbidity (NTU)                  | 0.02                                                                               |
| Dissolved Oxygen (mg/L)          | 0.38                                                                               |
| Temperature (Degrees Celsius)    | 12.6                                                                               |
| Redox (ORP mV)                   | -106.1                                                                             |
| parameters                       | @14:25, DTW:9.73, pH:12.37, temp:12.6, cond:2.52, turb:0.02, DO:0.38, redox:-106.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:30, DTW:9.73, pH:12.36, temp:12.5, cond:2.51, turb:0.02, DO:0.38, redox:-107.8**



|                                                                                                                                                                                                                                                                                                                                                  |                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 14:30                                                                              |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                                  |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 200                                                                                |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 9.73                                                                               |
| pH                                                                                                                                                                                                                                                                                                                                               | 12.36                                                                              |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 2.51                                                                               |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 0.02                                                                               |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.38                                                                               |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 12.5                                                                               |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -107.8                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @14:30, DTW:9.73, pH:12.36, temp:12.5, cond:2.51, turb:0.02, DO:0.38, redox:-107.8 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                    |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 14:30                                                                              |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:30 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of stylized, cursive letters that appear to be 'ML' followed by a flourish.

Signed 2019-12-05 19:51:42 UTC

---

## 2019-06-10, MW-18-91, MW-18-91

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 09:20:24 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-10 10:00:36 EDT by Christine Gregg |
| Location                                                                                          | 42.74473777, -84.5841937                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-10                                 |
| Well Identification                                                                               | MW-18-91                                   |
| Well ID                                                                                           | MW-18-91                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Cloudy, 65F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 2.56          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 15.12         |
| Water Column                                                                                                                                                                                                                                           | 12.56         |
| Gallons in Well                                                                                                                                                                                                                                        | 2.04          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 13.12         |
| Purge Start                                                                                                                                                                                                                                            | 09:30         |

### @09:35, DTW:3.73, pH:7.42, temp:14.8, cond:0.65, turb:2.54, DO:0.25, redox:-162.3

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 09:35                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 3.73                                                                              |
| Milliliters Purged (total)    | 1000                                                                              |
| pH                            | 7.42                                                                              |
| Conductivity (mS/cm)          | 0.65                                                                              |
| Turbidity (NTU)               | 2.54                                                                              |
| Dissolved Oxygen (mg/L)       | 0.25                                                                              |
| Temperature (Degrees Celsius) | 14.8                                                                              |
| Redox (ORP mV)                | -162.3                                                                            |
| parameters                    | @09:35, DTW:3.73, pH:7.42, temp:14.8, cond:0.65, turb:2.54, DO:0.25, redox:-162.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:40, DTW:4.3, pH:7.54, temp:14.7, cond:0.63, turb:2.22, DO:0.13, redox:-168.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 4.3                                                                              |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 7.54                                                                             |
| Conductivity (mS/cm)             | 0.63                                                                             |
| Turbidity (NTU)                  | 2.22                                                                             |
| Dissolved Oxygen (mg/L)          | 0.13                                                                             |
| Temperature (Degrees Celsius)    | 14.7                                                                             |
| Redox (ORP mV)                   | -168.3                                                                           |
| parameters                       | @09:40, DTW:4.3, pH:7.54, temp:14.7, cond:0.63, turb:2.22, DO:0.13, redox:-168.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:45, DTW:4.61, pH:7.58, temp:14.9, cond:0.63, turb:1.87, DO:0.11, redox:-170.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 4.61                                                                              |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 7.58                                                                              |
| Conductivity (mS/cm)             | 0.63                                                                              |
| Turbidity (NTU)                  | 1.87                                                                              |
| Dissolved Oxygen (mg/L)          | 0.11                                                                              |
| Temperature (Degrees Celsius)    | 14.9                                                                              |
| Redox (ORP mV)                   | -170.5                                                                            |
| parameters                       | @09:45, DTW:4.61, pH:7.58, temp:14.9, cond:0.63, turb:1.87, DO:0.11, redox:-170.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:50, DTW:4.81, pH:7.62, temp:14.7, cond:0.63, turb:1.59, DO:0.09, redox:-171.2**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 09:50  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 200    |
| Depth to Water (ft)              | 4.81   |
| Milliliters Purged (total)       | 4000   |
| pH                               | 7.62   |
| Conductivity (mS/cm)             | 0.63   |
| Turbidity (NTU)                  | 1.59   |
| Dissolved Oxygen (mg/L)          | 0.09   |
| Temperature (Degrees Celsius)    | 14.7   |
| Redox (ORP mV)                   | -171.2 |

parameters

@09:50, DTW:4.81, pH:7.62, temp:14.7, cond:0.63, turb:1.59, DO:0.09, redox:-171.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 10:00 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 09:55 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                |                |
|----------------|----------------|
| Container Type | 250 mL Plastic |
|----------------|----------------|

|                      |   |
|----------------------|---|
| Number of Containers | 2 |
|----------------------|---|

|              |     |
|--------------|-----|
| Preservative | HCL |
|--------------|-----|

### Well Information

|                        |    |
|------------------------|----|
| Well Locked at Arrival | No |
|------------------------|----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature



Signed 2019-06-10 13:21:55 UTC

## 2019-08-28, MW-18-91

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 18:44:12 UTC by Gary Schafer |
| Updated                                                                                           | 2020-03-31 18:54:21 UTC by Gary Schafer |
| Location                                                                                          | 42.5032616313943, -83.4426225722613     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-08-28                              |
| Well ID                                                                                           | MW-18-91                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Sun clouds temp 73                      |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 7.9           |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 15.1          |
| Water Column                                                                                                                                                                                                                                               | 7.2           |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                | 14:35         |

### @14:38, DTW:9.38, pH:5.59, temp:22.7, cond:0.82, turb:33.7, DO:0.12, redox:-96

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 14:38                                                                          |
| Rate (mL/min)                 | 100                                                                            |
| Depth to Water (ft)           | 9.38                                                                           |
| pH                            | 5.59                                                                           |
| Conductivity (mS/cm)          | 0.82                                                                           |
| Turbidity (NTU)               | 33.7                                                                           |
| Dissolved Oxygen (mg/L)       | 0.12                                                                           |
| Temperature (Degrees Celsius) | 22.7                                                                           |
| Redox (ORP mV)                | -96                                                                            |
| parameters                    | @14:38, DTW:9.38, pH:5.59, temp:22.7, cond:0.82, turb:33.7, DO:0.12, redox:-96 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:43, DTW:9.42, pH:5.55, temp:22.6, cond:0.8, turb:16.6, DO:0.11, redox:-97.8

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:43 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 9.42  |
| pH                               | 5.55  |
| Conductivity (mS/cm)             | 0.8   |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Turbidity (NTU)               | 16.6                                                                            |
| Dissolved Oxygen (mg/L)       | 0.11                                                                            |
| Temperature (Degrees Celsius) | 22.6                                                                            |
| Redox (ORP mV)                | -97.8                                                                           |
| parameters                    | @14:43, DTW:9.42, pH:5.55, temp:22.6, cond:0.8, turb:16.6, DO:0.11, redox:-97.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:48, DTW:9.88, pH:5.54, temp:22.6, cond:0.79, turb:10.5, DO:0.13, redox:-92**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:48                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 9.88                                                                           |
| pH                               | 5.54                                                                           |
| Conductivity (mS/cm)             | 0.79                                                                           |
| Turbidity (NTU)                  | 10.5                                                                           |
| Dissolved Oxygen (mg/L)          | 0.13                                                                           |
| Temperature (Degrees Celsius)    | 22.6                                                                           |
| Redox (ORP mV)                   | -92                                                                            |
| parameters                       | @14:48, DTW:9.88, pH:5.54, temp:22.6, cond:0.79, turb:10.5, DO:0.13, redox:-92 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:53, DTW:10.13, pH:5.52, temp:22.5, cond:0.76, turb:13.1, DO:0.24, redox:-87.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:53                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 10.13                                                                             |
| pH                               | 5.52                                                                              |
| Conductivity (mS/cm)             | 0.76                                                                              |
| Turbidity (NTU)                  | 13.1                                                                              |
| Dissolved Oxygen (mg/L)          | 0.24                                                                              |
| Temperature (Degrees Celsius)    | 22.5                                                                              |
| Redox (ORP mV)                   | -87.2                                                                             |
| parameters                       | @14:53, DTW:10.13, pH:5.52, temp:22.5, cond:0.76, turb:13.1, DO:0.24, redox:-87.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:58, DTW:10.31, pH:5.55, temp:22.1, cond:0.74, turb:5.93, DO:0.26, redox:-82.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:58 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 10.31 |
| pH                               | 5.55  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.74                                                                              |
| Turbidity (NTU)               | 5.93                                                                              |
| Dissolved Oxygen (mg/L)       | 0.26                                                                              |
| Temperature (Degrees Celsius) | 22.1                                                                              |
| Redox (ORP mV)                | -82.2                                                                             |
| parameters                    | @14:58, DTW:10.31, pH:5.55, temp:22.1, cond:0.74, turb:5.93, DO:0.26, redox:-82.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:03, DTW:10.57, pH:5.52, temp:21.5, cond:0.74, turb:9.97, DO:0.23, redox:-80**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:03                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 10.57                                                                           |
| pH                               | 5.52                                                                            |
| Conductivity (mS/cm)             | 0.74                                                                            |
| Turbidity (NTU)                  | 9.97                                                                            |
| Dissolved Oxygen (mg/L)          | 0.23                                                                            |
| Temperature (Degrees Celsius)    | 21.5                                                                            |
| Redox (ORP mV)                   | -80                                                                             |
| parameters                       | @15:03, DTW:10.57, pH:5.52, temp:21.5, cond:0.74, turb:9.97, DO:0.23, redox:-80 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:08, DTW:10.58, pH:5.5, temp:21.6, cond:0.74, turb:9.9, DO:0.24, redox:-78.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:08                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 10.58                                                                           |
| pH                               | 5.5                                                                             |
| Conductivity (mS/cm)             | 0.74                                                                            |
| Turbidity (NTU)                  | 9.9                                                                             |
| Dissolved Oxygen (mg/L)          | 0.24                                                                            |
| Temperature (Degrees Celsius)    | 21.6                                                                            |
| Redox (ORP mV)                   | -78.1                                                                           |
| parameters                       | @15:08, DTW:10.58, pH:5.5, temp:21.6, cond:0.74, turb:9.9, DO:0.24, redox:-78.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 15:13   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 1       |

### **Sample Information**

|             |       |
|-------------|-------|
| Sample Time | 15:10 |
|-------------|-------|



## Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW 18-91 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |
| Signature                |          |

A handwritten signature in black ink, reading "Gary Schuler". The signature is written in a cursive style with a large, stylized "G" and "S".

Signed 2020-03-31 18:54:20 UTC

## 2019-12-06, MW-18-91

|                                                                                                   |                                           |
|---------------------------------------------------------------------------------------------------|-------------------------------------------|
| Created                                                                                           | 2019-12-06 13:39:53 UTC by Melissa Weaver |
| Updated                                                                                           | 2019-12-06 21:41:59 UTC by Melissa Weaver |
| Location                                                                                          | 42.7443734557885, -84.5827313885093       |
| Project Number                                                                                    | 30006870                                  |
| Project Name / Location                                                                           | RACER Lansing, MI                         |
| Sampler Name                                                                                      | Melissa Weaver                            |
| Date                                                                                              | 2019-12-06                                |
| Well ID                                                                                           | MW-18-91                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                       |
| Replicate No. (e.g. Dup)                                                                          | MSMSD                                     |
| Weather                                                                                           | 33 cloudy                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 5.3           |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 15.1          |
| Water Column                                                                                                                                                                                                                                              | 9.8           |
| Gallons in Well                                                                                                                                                                                                                                           | 1.59          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 13            |
| Purge Start                                                                                                                                                                                                                                               | 12:20         |

### @12:25, DTW:7.32, pH:7.6, temp:10.8, cond:0.74, turb:20.9, DO:0.13, redox:195.6

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 12:25                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 7.32                                                                            |
| pH                            | 7.6                                                                             |
| Conductivity (mS/cm)          | 0.74                                                                            |
| Turbidity (NTU)               | 20.9                                                                            |
| Dissolved Oxygen (mg/L)       | 0.13                                                                            |
| Temperature (Degrees Celsius) | 10.8                                                                            |
| Redox (ORP mV)                | 195.6                                                                           |
| parameters                    | @12:25, DTW:7.32, pH:7.6, temp:10.8, cond:0.74, turb:20.9, DO:0.13, redox:195.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:30, DTW:8.03, pH:7.57, temp:10.9, cond:0.73, turb:15.2, DO:0.12, redox:149.3

|              |       |
|--------------|-------|
| Reading Time | 12:30 |
|--------------|-------|

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 8.03                                                                             |
| pH                               | 7.57                                                                             |
| Conductivity (mS/cm)             | 0.73                                                                             |
| Turbidity (NTU)                  | 15.2                                                                             |
| Dissolved Oxygen (mg/L)          | 0.12                                                                             |
| Temperature (Degrees Celsius)    | 10.9                                                                             |
| Redox (ORP mV)                   | 149.3                                                                            |
| parameters                       | @12:30, DTW:8.03, pH:7.57, temp:10.9, cond:0.73, turb:15.2, DO:0.12, redox:149.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:35, DTW:8.72, pH:7.58, temp:11, cond:0.73, turb:14.2, DO:0.13, redox:85.9**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 8.72                                                                          |
| pH                               | 7.58                                                                          |
| Conductivity (mS/cm)             | 0.73                                                                          |
| Turbidity (NTU)                  | 14.2                                                                          |
| Dissolved Oxygen (mg/L)          | 0.13                                                                          |
| Temperature (Degrees Celsius)    | 11                                                                            |
| Redox (ORP mV)                   | 85.9                                                                          |
| parameters                       | @12:35, DTW:8.72, pH:7.58, temp:11, cond:0.73, turb:14.2, DO:0.13, redox:85.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:40, DTW:9.19, pH:7.57, temp:11.1, cond:0.72, turb:18.9, DO:0.12, redox:33.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 9.19                                                                            |
| pH                               | 7.57                                                                            |
| Conductivity (mS/cm)             | 0.72                                                                            |
| Turbidity (NTU)                  | 18.9                                                                            |
| Dissolved Oxygen (mg/L)          | 0.12                                                                            |
| Temperature (Degrees Celsius)    | 11.1                                                                            |
| Redox (ORP mV)                   | 33.1                                                                            |
| parameters                       | @12:40, DTW:9.19, pH:7.57, temp:11.1, cond:0.72, turb:18.9, DO:0.12, redox:33.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:45, DTW:9.62, pH:7.58, temp:11.2, cond:0.72, turb:13.1, DO:0.12, redox:-2.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 9.62                                                                            |
| pH                               | 7.58                                                                            |
| Conductivity (mS/cm)             | 0.72                                                                            |
| Turbidity (NTU)                  | 13.1                                                                            |
| Dissolved Oxygen (mg/L)          | 0.12                                                                            |
| Temperature (Degrees Celsius)    | 11.2                                                                            |
| Redox (ORP mV)                   | -2.9                                                                            |
| parameters                       | @12:45, DTW:9.62, pH:7.58, temp:11.2, cond:0.72, turb:13.1, DO:0.12, redox:-2.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:50, DTW:9.92, pH:7.6, temp:11.1, cond:0.71, turb:14.9, DO:0.1, redox:-28**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 12:50                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 9.92                                                                         |
| pH                               | 7.6                                                                          |
| Conductivity (mS/cm)             | 0.71                                                                         |
| Turbidity (NTU)                  | 14.9                                                                         |
| Dissolved Oxygen (mg/L)          | 0.1                                                                          |
| Temperature (Degrees Celsius)    | 11.1                                                                         |
| Redox (ORP mV)                   | -28                                                                          |
| parameters                       | @12:50, DTW:9.92, pH:7.6, temp:11.1, cond:0.71, turb:14.9, DO:0.1, redox:-28 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:55, DTW:10.16, pH:7.61, temp:11.3, cond:0.71, turb:11.2, DO:0.11, redox:-42.7**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:55                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 10.16                                                                             |
| pH                               | 7.61                                                                              |
| Conductivity (mS/cm)             | 0.71                                                                              |
| Turbidity (NTU)                  | 11.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.11                                                                              |
| Temperature (Degrees Celsius)    | 11.3                                                                              |
| Redox (ORP mV)                   | -42.7                                                                             |
| parameters                       | @12:55, DTW:10.16, pH:7.61, temp:11.3, cond:0.71, turb:11.2, DO:0.11, redox:-42.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:00, DTW:10.32, pH:7.61, temp:11.3, cond:0.7, turb:7.02, DO:0.11, redox:-54.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 10.32                                                                            |
| pH                               | 7.61                                                                             |
| Conductivity (mS/cm)             | 0.7                                                                              |
| Turbidity (NTU)                  | 7.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.11                                                                             |
| Temperature (Degrees Celsius)    | 11.3                                                                             |
| Redox (ORP mV)                   | -54.1                                                                            |
| parameters                       | @13:00, DTW:10.32, pH:7.61, temp:11.3, cond:0.7, turb:7.02, DO:0.11, redox:-54.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:05, DTW:10.5, pH:7.61, temp:11.5, cond:0.7, turb:5.3, DO:0.28, redox:-66.4**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:05                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 10.5                                                                           |
| pH                               | 7.61                                                                           |
| Conductivity (mS/cm)             | 0.7                                                                            |
| Turbidity (NTU)                  | 5.3                                                                            |
| Dissolved Oxygen (mg/L)          | 0.28                                                                           |
| Temperature (Degrees Celsius)    | 11.5                                                                           |
| Redox (ORP mV)                   | -66.4                                                                          |
| parameters                       | @13:05, DTW:10.5, pH:7.61, temp:11.5, cond:0.7, turb:5.3, DO:0.28, redox:-66.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:10, DTW:10.63, pH:7.62, temp:11.4, cond:0.7, turb:5.43, DO:0.38, redox:-69.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 10.63                                                                            |
| pH                               | 7.62                                                                             |
| Conductivity (mS/cm)             | 0.7                                                                              |
| Turbidity (NTU)                  | 5.43                                                                             |
| Dissolved Oxygen (mg/L)          | 0.38                                                                             |
| Temperature (Degrees Celsius)    | 11.4                                                                             |
| Redox (ORP mV)                   | -69.2                                                                            |
| parameters                       | @13:10, DTW:10.63, pH:7.62, temp:11.4, cond:0.7, turb:5.43, DO:0.38, redox:-69.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:15, DTW:10.76, pH:7.36, temp:11.4, cond:0.69, turb:4.82, DO:0.76, redox:-54**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 10.76                                                                           |
| pH                               | 7.36                                                                            |
| Conductivity (mS/cm)             | 0.69                                                                            |
| Turbidity (NTU)                  | 4.82                                                                            |
| Dissolved Oxygen (mg/L)          | 0.76                                                                            |
| Temperature (Degrees Celsius)    | 11.4                                                                            |
| Redox (ORP mV)                   | -54                                                                             |
| parameters                       | @13:15, DTW:10.76, pH:7.36, temp:11.4, cond:0.69, turb:4.82, DO:0.76, redox:-54 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:20, DTW:10.92, pH:7.36, temp:11.5, cond:0.7, turb:4.19, DO:1.06, redox:-51.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 10.92                                                                            |
| pH                               | 7.36                                                                             |
| Conductivity (mS/cm)             | 0.7                                                                              |
| Turbidity (NTU)                  | 4.19                                                                             |
| Dissolved Oxygen (mg/L)          | 1.06                                                                             |
| Temperature (Degrees Celsius)    | 11.5                                                                             |
| Redox (ORP mV)                   | -51.5                                                                            |
| parameters                       | @13:20, DTW:10.92, pH:7.36, temp:11.5, cond:0.7, turb:4.19, DO:1.06, redox:-51.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:25, DTW:11.04, pH:7.37, temp:11.4, cond:0.68, turb:1.31, DO:1.64, redox:-46**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 11.04 |
| pH                               | 7.37  |
| Conductivity (mS/cm)             | 0.68  |
| Turbidity (NTU)                  | 1.31  |
| Dissolved Oxygen (mg/L)          | 1.64  |
| Temperature (Degrees Celsius)    | 11.4  |
| Redox (ORP mV)                   | -46   |

parameters

@13:25, DTW:11.04, pH:7.37, temp:11.4, cond:0.68, turb:1.31, DO:1.64, redox:-46

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 13:25 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 13:25 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                |                |
|----------------|----------------|
| Container Type | 250 mL Plastic |
|----------------|----------------|

|                      |   |
|----------------------|---|
| Number of Containers | 2 |
|----------------------|---|

|              |      |
|--------------|------|
| Preservative | None |
|--------------|------|

### Well Information

|               |         |
|---------------|---------|
| Well Location | Plant 3 |
|---------------|---------|

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature

A handwritten signature in black ink, consisting of stylized, cursive letters that appear to be 'M' and 'L'.

Signed 2019-12-06 21:41:58 UTC

## 2019-06-05, MW-18-92, MW-18-92

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 12:45:33 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-05 13:14:52 EDT by Christine Gregg |
| Location                                                                                          | 42.74532165, -84.58650207                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-05                                 |
| Well Identification                                                                               | MW-18-92                                   |
| Well ID                                                                                           | MW-18-92                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Cloudy, light rain, 75F                    |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 11.46         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 30.16         |
| Water Column                                                                                                                                                                                                                                           | 18.7          |
| Gallons in Well                                                                                                                                                                                                                                        | 3.04          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 5             |
| Purge Start                                                                                                                                                                                                                                            | 12:45         |

### @12:50, DTW:11.75, pH:6.86, temp:12.5, cond:1.35, turb:7.93, DO:0.91, redox:180

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 12:50                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 11.75                                                                           |
| Milliliters Purged (total)    | 1000                                                                            |
| pH                            | 6.86                                                                            |
| Conductivity (mS/cm)          | 1.35                                                                            |
| Turbidity (NTU)               | 7.93                                                                            |
| Dissolved Oxygen (mg/L)       | 0.91                                                                            |
| Temperature (Degrees Celsius) | 12.5                                                                            |
| Redox (ORP mV)                | 180                                                                             |
| parameters                    | @12:50, DTW:11.75, pH:6.86, temp:12.5, cond:1.35, turb:7.93, DO:0.91, redox:180 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit



**@12:55, DTW:12.15, pH:6.87, temp:12.2, cond:1.32, turb:4.83, DO:0.25, redox:162.8**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:55                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 12.15                                                                             |
| Milliliters Purged (total)       | 2000                                                                              |
| pH                               | 6.87                                                                              |
| Conductivity (mS/cm)             | 1.32                                                                              |
| Turbidity (NTU)                  | 4.83                                                                              |
| Dissolved Oxygen (mg/L)          | 0.25                                                                              |
| Temperature (Degrees Celsius)    | 12.2                                                                              |
| Redox (ORP mV)                   | 162.8                                                                             |
| parameters                       | @12:55, DTW:12.15, pH:6.87, temp:12.2, cond:1.32, turb:4.83, DO:0.25, redox:162.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:00, DTW:12.21, pH:6.87, temp:12.1, cond:1.3, turb:3.59, DO:0.22, redox:156.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 12.21                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 6.87                                                                             |
| Conductivity (mS/cm)             | 1.3                                                                              |
| Turbidity (NTU)                  | 3.59                                                                             |
| Dissolved Oxygen (mg/L)          | 0.22                                                                             |
| Temperature (Degrees Celsius)    | 12.1                                                                             |
| Redox (ORP mV)                   | 156.1                                                                            |
| parameters                       | @13:00, DTW:12.21, pH:6.87, temp:12.1, cond:1.3, turb:3.59, DO:0.22, redox:156.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:05, DTW:12.21, pH:6.86, temp:12.2, cond:1.28, turb:2.72, DO:0.2, redox:151.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 12.21 |
| Milliliters Purged (total)       | 4000  |
| pH                               | 6.86  |
| Conductivity (mS/cm)             | 1.28  |
| Turbidity (NTU)                  | 2.72  |
| Dissolved Oxygen (mg/L)          | 0.2   |
| Temperature (Degrees Celsius)    | 12.2  |
| Redox (ORP mV)                   | 151.9 |

parameters

@13:05, DTW:12.21, pH:6.86, temp:12.2, cond:1.28, turb:2.72, DO:0.2, redox:151.9

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:10, DTW:12.21, pH:6.86, temp:12.2, cond:1.28, turb:2.58, DO:0.19, redox:150.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 12.21                                                                             |
| Milliliters Purged (total)       | 5000                                                                              |
| pH                               | 6.86                                                                              |
| Conductivity (mS/cm)             | 1.28                                                                              |
| Turbidity (NTU)                  | 2.58                                                                              |
| Dissolved Oxygen (mg/L)          | 0.19                                                                              |
| Temperature (Degrees Celsius)    | 12.2                                                                              |
| Redox (ORP mV)                   | 150.5                                                                             |
| parameters                       | @13:10, DTW:12.21, pH:6.86, temp:12.2, cond:1.28, turb:2.58, DO:0.19, redox:150.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 13:20 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:15 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |                                                        |
|--------------------------|--------------------------------------------------------|
| Condition of Well        | Good.                                                  |
| Well Locked at Arrival   | No                                                     |
| Well Locked at Departure | No                                                     |
| Comments                 | Well will be locked tomorrow. New locks ordered today. |

Signature

A handwritten signature in black ink, appearing to be 'A. L. Wink', written in a cursive style.

Signed 2019-06-05 16:46:59 UTC

---

## 2019-12-03, MW-18-92

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-03 18:04:20 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-03 19:08:26 UTC by Austin Westhuis |
| Location                                                                                          | 42.7450680127765, -84.5864970424069        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-03                                 |
| Well ID                                                                                           | MW-18-92                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | NA                                         |
| Weather                                                                                           | Cloudy, windy, 30F                         |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 12.14         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 30.1          |
| Water Column                                                                                                                                                                                                                                              | 17.96         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.92          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 27.6          |
| Purge Start                                                                                                                                                                                                                                               | 13:40         |

### @13:45, DTW:13.31, pH:6.82, temp:11.8, cond:1.09, turb:2.76, DO:3.6, redox:61.7

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 13:45                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 13.31                                                                           |
| Milliliters Purged (total)    | 1000                                                                            |
| pH                            | 6.82                                                                            |
| Conductivity (mS/cm)          | 1.09                                                                            |
| Turbidity (NTU)               | 2.76                                                                            |
| Dissolved Oxygen (mg/L)       | 3.6                                                                             |
| Temperature (Degrees Celsius) | 11.8                                                                            |
| Redox (ORP mV)                | 61.7                                                                            |
| parameters                    | @13:45, DTW:13.31, pH:6.82, temp:11.8, cond:1.09, turb:2.76, DO:3.6, redox:61.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:50, DTW:13.44, pH:6.78, temp:11.9, cond:1.1, turb:2.37, DO:3.2, redox:58.1

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:50                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 13.44                                                                          |
| Milliliters Purged (total)       | 2000                                                                           |
| pH                               | 6.78                                                                           |
| Conductivity (mS/cm)             | 1.1                                                                            |
| Turbidity (NTU)                  | 2.37                                                                           |
| Dissolved Oxygen (mg/L)          | 3.2                                                                            |
| Temperature (Degrees Celsius)    | 11.9                                                                           |
| Redox (ORP mV)                   | 58.1                                                                           |
| parameters                       | @13:50, DTW:13.44, pH:6.78, temp:11.9, cond:1.1, turb:2.37, DO:3.2, redox:58.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:55, DTW:13.49, pH:6.76, temp:11.6, cond:1.08, turb:2.2, DO:3.01, redox:57.6**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:55                                                                           |
| Minutes Elapsed between readings | 65                                                                              |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 13.49                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 6.76                                                                            |
| Conductivity (mS/cm)             | 1.08                                                                            |
| Turbidity (NTU)                  | 2.2                                                                             |
| Dissolved Oxygen (mg/L)          | 3.01                                                                            |
| Temperature (Degrees Celsius)    | 11.6                                                                            |
| Redox (ORP mV)                   | 57.6                                                                            |
| parameters                       | @14:55, DTW:13.49, pH:6.76, temp:11.6, cond:1.08, turb:2.2, DO:3.01, redox:57.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:00, DTW:13.52, pH:6.76, temp:11.6, cond:1.08, turb:2.12, DO:3.04, redox:55.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:00                                                                            |
| Minutes Elapsed between readings | 1385                                                                             |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 13.52                                                                            |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 6.76                                                                             |
| Conductivity (mS/cm)             | 1.08                                                                             |
| Turbidity (NTU)                  | 2.12                                                                             |
| Dissolved Oxygen (mg/L)          | 3.04                                                                             |
| Temperature (Degrees Celsius)    | 11.6                                                                             |
| Redox (ORP mV)                   | 55.8                                                                             |
| parameters                       | @14:00, DTW:13.52, pH:6.76, temp:11.6, cond:1.08, turb:2.12, DO:3.04, redox:55.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:05, DTW:13.54, pH:6.75, temp:11.4, cond:1.07, turb:1.79, DO:3.03, redox:53.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:05                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 13.54                                                                            |
| Milliliters Purged (total)       | 5000                                                                             |
| pH                               | 6.75                                                                             |
| Conductivity (mS/cm)             | 1.07                                                                             |
| Turbidity (NTU)                  | 1.79                                                                             |
| Dissolved Oxygen (mg/L)          | 3.03                                                                             |
| Temperature (Degrees Celsius)    | 11.4                                                                             |
| Redox (ORP mV)                   | 53.5                                                                             |
| parameters                       | @14:05, DTW:13.54, pH:6.75, temp:11.4, cond:1.07, turb:1.79, DO:3.03, redox:53.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 14:15 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:10 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to be 'A. W. L.' with a stylized flourish at the end.

Signed 2019-12-03 18:31:00 UTC

---

## 2019-03-06, MW-18-93, MW-18-93

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-03-06 10:55:40 EST by Billy Cobern    |
| Updated                                                                                           | 2019-03-06 11:52:58 EST by Christine Gregg |
| Location                                                                                          | 42.74519546, -84.58263039                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-03-06                                 |
| Well Identification                                                                               | MW-18-93                                   |
| Well ID                                                                                           | MW-18-93                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | M Cloudy 15 degrees                        |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 52.12         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 85.25         |
| Water Column                                                                                                                                                                                                                                              | 33.13         |
| Gallons in Well                                                                                                                                                                                                                                           | 5.38          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 82.5          |
| Purge Start                                                                                                                                                                                                                                               | 10:50         |

### @10:50, DTW:52.12, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 10:50                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 52.12                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @10:50, DTW:52.12, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:55, DTW:52.97, pH:7.77, temp:7.8, cond:0.627, turb:43.2, DO:7.22, redox:-57.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 52.97 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.77  |



|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.627                                                                             |
| Turbidity (NTU)               | 43.2                                                                              |
| Dissolved Oxygen (mg/L)       | 7.22                                                                              |
| Temperature (Degrees Celsius) | 7.8                                                                               |
| Redox (ORP mV)                | -57.9                                                                             |
| parameters                    | @10:55, DTW:52.97, pH:7.77, temp:7.8, cond:0.627, turb:43.2, DO:7.22, redox:-57.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:00, DTW:53.41, pH:7.75, temp:6.3, cond:0.619, turb:31, DO:5.26, redox:-79.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 53.41                                                                           |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.75                                                                            |
| Conductivity (mS/cm)             | 0.619                                                                           |
| Turbidity (NTU)                  | 31                                                                              |
| Dissolved Oxygen (mg/L)          | 5.26                                                                            |
| Temperature (Degrees Celsius)    | 6.3                                                                             |
| Redox (ORP mV)                   | -79.9                                                                           |
| parameters                       | @11:00, DTW:53.41, pH:7.75, temp:6.3, cond:0.619, turb:31, DO:5.26, redox:-79.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:05, DTW:53.85, pH:7.76, temp:7.1, cond:0.608, turb:21.8, DO:4.31, redox:-88.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:05                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 53.85                                                                             |
| Milliliters Purged (total)       | 1500                                                                              |
| pH                               | 7.76                                                                              |
| Conductivity (mS/cm)             | 0.608                                                                             |
| Turbidity (NTU)                  | 21.8                                                                              |
| Dissolved Oxygen (mg/L)          | 4.31                                                                              |
| Temperature (Degrees Celsius)    | 7.1                                                                               |
| Redox (ORP mV)                   | -88.2                                                                             |
| parameters                       | @11:05, DTW:53.85, pH:7.76, temp:7.1, cond:0.608, turb:21.8, DO:4.31, redox:-88.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:10, DTW:53.95, pH:7.77, temp:7.8, cond:0.598, turb:15.9, DO:3.97, redox:-103.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:10 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                                |
| Depth to Water (ft)           | 53.95                                                                              |
| Milliliters Purged (total)    | 2000                                                                               |
| pH                            | 7.77                                                                               |
| Conductivity (mS/cm)          | 0.598                                                                              |
| Turbidity (NTU)               | 15.9                                                                               |
| Dissolved Oxygen (mg/L)       | 3.97                                                                               |
| Temperature (Degrees Celsius) | 7.8                                                                                |
| Redox (ORP mV)                | -103.8                                                                             |
| parameters                    | @11:10, DTW:53.95, pH:7.77, temp:7.8, cond:0.598, turb:15.9, DO:3.97, redox:-103.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:15, DTW:54.04, pH:7.78, temp:7.6, cond:0.606, turb:14.8, DO:3.5, redox:-119.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 54.04                                                                             |
| Milliliters Purged (total)       | 2500                                                                              |
| pH                               | 7.78                                                                              |
| Conductivity (mS/cm)             | 0.606                                                                             |
| Turbidity (NTU)                  | 14.8                                                                              |
| Dissolved Oxygen (mg/L)          | 3.5                                                                               |
| Temperature (Degrees Celsius)    | 7.6                                                                               |
| Redox (ORP mV)                   | -119.9                                                                            |
| parameters                       | @11:15, DTW:54.04, pH:7.78, temp:7.6, cond:0.606, turb:14.8, DO:3.5, redox:-119.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:20, DTW:54.15, pH:7.79, temp:7.6, cond:0.606, turb:13.1, DO:3.44, redox:-129.2**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 11:20                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 54.15                                                                              |
| Milliliters Purged (total)       | 3000                                                                               |
| pH                               | 7.79                                                                               |
| Conductivity (mS/cm)             | 0.606                                                                              |
| Turbidity (NTU)                  | 13.1                                                                               |
| Dissolved Oxygen (mg/L)          | 3.44                                                                               |
| Temperature (Degrees Celsius)    | 7.6                                                                                |
| Redox (ORP mV)                   | -129.2                                                                             |
| parameters                       | @11:20, DTW:54.15, pH:7.79, temp:7.6, cond:0.606, turb:13.1, DO:3.44, redox:-129.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:25, DTW:54.25, pH:7.79, temp:7.3, cond:0.603, turb:10.5, DO:3.41, redox:-134.2**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 54.25                                                                              |
| Milliliters Purged (total)       | 3500                                                                               |
| pH                               | 7.79                                                                               |
| Conductivity (mS/cm)             | 0.603                                                                              |
| Turbidity (NTU)                  | 10.5                                                                               |
| Dissolved Oxygen (mg/L)          | 3.41                                                                               |
| Temperature (Degrees Celsius)    | 7.3                                                                                |
| Redox (ORP mV)                   | -134.2                                                                             |
| parameters                       | @11:25, DTW:54.25, pH:7.79, temp:7.3, cond:0.603, turb:10.5, DO:3.41, redox:-134.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:30, DTW:54.26, pH:7.79, temp:7.3, cond:0.607, turb:9.57, DO:3.46, redox:-140.1**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 11:30                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 54.26                                                                              |
| Milliliters Purged (total)       | 4000                                                                               |
| pH                               | 7.79                                                                               |
| Conductivity (mS/cm)             | 0.607                                                                              |
| Turbidity (NTU)                  | 9.57                                                                               |
| Dissolved Oxygen (mg/L)          | 3.46                                                                               |
| Temperature (Degrees Celsius)    | 7.3                                                                                |
| Redox (ORP mV)                   | -140.1                                                                             |
| parameters                       | @11:30, DTW:54.26, pH:7.79, temp:7.3, cond:0.607, turb:9.57, DO:3.46, redox:-140.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:35, DTW:54.32, pH:7.78, temp:7.3, cond:0.604, turb:9.21, DO:3.44, redox:-141.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 54.32 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.78  |
| Conductivity (mS/cm)             | 0.604 |
| Turbidity (NTU)                  | 9.21  |

|                               |                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 3.44                                                                               |
| Temperature (Degrees Celsius) | 7.3                                                                                |
| Redox (ORP mV)                | -141.9                                                                             |
| parameters                    | @11:35, DTW:54.32, pH:7.78, temp:7.3, cond:0.604, turb:9.21, DO:3.44, redox:-141.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:40, DTW:54.39, pH:7.78, temp:7.4, cond:0.61, turb:9.09, DO:3.29, redox:-143.9

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:40                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 54.39                                                                             |
| Milliliters Purged (total)       | 5000                                                                              |
| pH                               | 7.78                                                                              |
| Conductivity (mS/cm)             | 0.61                                                                              |
| Turbidity (NTU)                  | 9.09                                                                              |
| Dissolved Oxygen (mg/L)          | 3.29                                                                              |
| Temperature (Degrees Celsius)    | 7.4                                                                               |
| Redox (ORP mV)                   | -143.9                                                                            |
| parameters                       | @11:40, DTW:54.39, pH:7.78, temp:7.4, cond:0.61, turb:9.09, DO:3.29, redox:-143.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 11:40       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 5000        |
| Well Volumes Purged           | 0.25        |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:40 |
| Color         | Clear |
| Notable odors | Yes   |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |                                                   |
|--------------------------|---------------------------------------------------|
| Well Location            | On site Plant 3                                   |
| Condition of Well        | Good                                              |
| Well Locked at Arrival   | No                                                |
| Well Locked at Departure | Yes                                               |
| Comments                 | Installed lock, didn't meet drawdown requirements |

Signature

A handwritten signature in black ink, appearing to be 'Zurh' followed by a long horizontal stroke.

Signed 2019-03-06 15:57:59 UTC

---

## 2019-06-10, MW-18-93, MW-18-93

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 11:40:48 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-10 12:20:27 EDT by Christine Gregg |
| Location                                                                                          | 42.745167, -84.58275385                    |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-10                                 |
| Well Identification                                                                               | MW-18-93                                   |
| Well ID                                                                                           | MW-18-93                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Cloudy, windy, 70F                         |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 50.62         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 85.4          |
| Water Column                                                                                                                                                                                                                                           | 34.78         |
| Gallons in Well                                                                                                                                                                                                                                        | 5.65          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Bladder       |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 82.9          |
| Purge Start                                                                                                                                                                                                                                            | 11:40         |

### @11:45, DTW:52.18, pH:7.55, temp:16.2, cond:0.56, turb:7.48, DO:1.68, redox:-104.3

|                               |                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------|
| Reading Time                  | 11:45                                                                              |
| Rate (mL/min)                 | 200                                                                                |
| Depth to Water (ft)           | 52.18                                                                              |
| Milliliters Purged (total)    | 1000                                                                               |
| pH                            | 7.55                                                                               |
| Conductivity (mS/cm)          | 0.56                                                                               |
| Turbidity (NTU)               | 7.48                                                                               |
| Dissolved Oxygen (mg/L)       | 1.68                                                                               |
| Temperature (Degrees Celsius) | 16.2                                                                               |
| Redox (ORP mV)                | -104.3                                                                             |
| parameters                    | @11:45, DTW:52.18, pH:7.55, temp:16.2, cond:0.56, turb:7.48, DO:1.68, redox:-104.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:50, DTW:53.5, pH:7.55, temp:14, cond:0.53, turb:4.27, DO:0.88, redox:-132.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:50                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 53.5                                                                            |
| Milliliters Purged (total)       | 2000                                                                            |
| pH                               | 7.55                                                                            |
| Conductivity (mS/cm)             | 0.53                                                                            |
| Turbidity (NTU)                  | 4.27                                                                            |
| Dissolved Oxygen (mg/L)          | 0.88                                                                            |
| Temperature (Degrees Celsius)    | 14                                                                              |
| Redox (ORP mV)                   | -132.5                                                                          |
| parameters                       | @11:50, DTW:53.5, pH:7.55, temp:14, cond:0.53, turb:4.27, DO:0.88, redox:-132.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:55, DTW:55.02, pH:7.56, temp:13.7, cond:0.52, turb:2.48, DO:0.64, redox:-134.3**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 11:55                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 55.02                                                                              |
| Milliliters Purged (total)       | 3000                                                                               |
| pH                               | 7.56                                                                               |
| Conductivity (mS/cm)             | 0.52                                                                               |
| Turbidity (NTU)                  | 2.48                                                                               |
| Dissolved Oxygen (mg/L)          | 0.64                                                                               |
| Temperature (Degrees Celsius)    | 13.7                                                                               |
| Redox (ORP mV)                   | -134.3                                                                             |
| parameters                       | @11:55, DTW:55.02, pH:7.56, temp:13.7, cond:0.52, turb:2.48, DO:0.64, redox:-134.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:00, DTW:55.77, pH:7.55, temp:13.6, cond:0.52, turb:1.77, DO:0.71, redox:-134.2**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 12:00  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 200    |
| Depth to Water (ft)              | 55.77  |
| Milliliters Purged (total)       | 4000   |
| pH                               | 7.55   |
| Conductivity (mS/cm)             | 0.52   |
| Turbidity (NTU)                  | 1.77   |
| Dissolved Oxygen (mg/L)          | 0.71   |
| Temperature (Degrees Celsius)    | 13.6   |
| Redox (ORP mV)                   | -134.2 |

parameters

@12:00, DTW:55.77, pH:7.55, temp:13.6, cond:0.52, turb:1.77, DO:0.71, redox:-134.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:05, DTW:56.61, pH:7.55, temp:13.7, cond:0.52, turb:1.72, DO:0.72, redox:-134.2**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 12:05  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 200    |
| Depth to Water (ft)              | 56.61  |
| Milliliters Purged (total)       | 5000   |
| pH                               | 7.55   |
| Conductivity (mS/cm)             | 0.52   |
| Turbidity (NTU)                  | 1.72   |
| Dissolved Oxygen (mg/L)          | 0.72   |
| Temperature (Degrees Celsius)    | 13.7   |
| Redox (ORP mV)                   | -134.2 |

parameters

@12:05, DTW:56.61, pH:7.55, temp:13.7, cond:0.52, turb:1.72, DO:0.72, redox:-134.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:10, DTW:56.89, pH:7.55, temp:13.6, cond:0.52, turb:1.4, DO:0.74, redox:-133.6**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 12:10  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 200    |
| Depth to Water (ft)              | 56.89  |
| Milliliters Purged (total)       | 6000   |
| pH                               | 7.55   |
| Conductivity (mS/cm)             | 0.52   |
| Turbidity (NTU)                  | 1.4    |
| Dissolved Oxygen (mg/L)          | 0.74   |
| Temperature (Degrees Celsius)    | 13.6   |
| Redox (ORP mV)                   | -133.6 |

parameters

@12:10, DTW:56.89, pH:7.55, temp:13.6, cond:0.52, turb:1.4, DO:0.74, redox:-133.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:15, DTW:57.01, pH:7.55, temp:13.6, cond:0.52, turb:1.33, DO:0.76, redox:-133.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 57.01 |
| Milliliters Purged (total)       | 7000  |
| pH                               | 7.55  |
| Conductivity (mS/cm)             | 0.52  |



|                                                                                                                                                                                                                                                                                                                                                  |                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 1.33                                                                               |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.76                                                                               |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 13.6                                                                               |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -133.4                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @12:15, DTW:57.01, pH:7.55, temp:13.6, cond:0.52, turb:1.33, DO:0.76, redox:-133.4 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                    |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 12:25                                                                              |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:20 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |
| Signature                |      |



Signed 2019-06-10 15:42:39 UTC

## 2019-12-06, MW-18-93

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-06 17:27:22 UTC by Gary Schafer |
| Updated                                                                                           | 2019-12-06 20:14:45 UTC by Gary Schafer |
| Location                                                                                          | 42.745176348875, -84.5826617349727      |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-12-06                              |
| Well ID                                                                                           | MW-18-93                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Overcast winds 8-10mph temp 36          |

## Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 49.78         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 84.9          |
| Water Column                                                                                                                                                                                                                                                 | 35.12         |
| Gallons in Well                                                                                                                                                                                                                                              | 5.71          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 66.92         |
| Purge Start                                                                                                                                                                                                                                                  | 12:29         |

## @12:30, DTW:52.22, pH:7.36, temp:11.4, cond:643, turb:337, DO:3.25, redox:-113.8

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 12:30                                                                            |
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 52.22                                                                            |
| pH                            | 7.36                                                                             |
| Conductivity (mS/cm)          | 643                                                                              |
| Turbidity (NTU)               | 337                                                                              |
| Dissolved Oxygen (mg/L)       | 3.25                                                                             |
| Temperature (Degrees Celsius) | 11.4                                                                             |
| Redox (ORP mV)                | -113.8                                                                           |
| parameters                    | @12:30, DTW:52.22, pH:7.36, temp:11.4, cond:643, turb:337, DO:3.25, redox:-113.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

## @12:35, DTW:53.2, pH:7.36, temp:10.9, cond:635, turb:145, DO:3.54, redox:-116.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:35 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                             |
| Depth to Water (ft)           | 53.2                                                                            |
| pH                            | 7.36                                                                            |
| Conductivity (mS/cm)          | 635                                                                             |
| Turbidity (NTU)               | 145                                                                             |
| Dissolved Oxygen (mg/L)       | 3.54                                                                            |
| Temperature (Degrees Celsius) | 10.9                                                                            |
| Redox (ORP mV)                | -116.9                                                                          |
| parameters                    | @12:35, DTW:53.2, pH:7.36, temp:10.9, cond:635, turb:145, DO:3.54, redox:-116.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:40, DTW:54.55, pH:7.39, temp:10.9, cond:633, turb:81.3, DO:3.3, redox:-120.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 54.55                                                                            |
| pH                               | 7.39                                                                             |
| Conductivity (mS/cm)             | 633                                                                              |
| Turbidity (NTU)                  | 81.3                                                                             |
| Dissolved Oxygen (mg/L)          | 3.3                                                                              |
| Temperature (Degrees Celsius)    | 10.9                                                                             |
| Redox (ORP mV)                   | -120.6                                                                           |
| parameters                       | @12:40, DTW:54.55, pH:7.39, temp:10.9, cond:633, turb:81.3, DO:3.3, redox:-120.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:45, DTW:56, pH:7.42, temp:11.1, cond:625, turb:77.4, DO:2.97, redox:-123**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 12:45                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 56                                                                           |
| pH                               | 7.42                                                                         |
| Conductivity (mS/cm)             | 625                                                                          |
| Turbidity (NTU)                  | 77.4                                                                         |
| Dissolved Oxygen (mg/L)          | 2.97                                                                         |
| Temperature (Degrees Celsius)    | 11.1                                                                         |
| Redox (ORP mV)                   | -123                                                                         |
| parameters                       | @12:45, DTW:56, pH:7.42, temp:11.1, cond:625, turb:77.4, DO:2.97, redox:-123 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:50, DTW:56.87, pH:7.42, temp:11.6, cond:626.8, turb:74, DO:3.04, redox:-122.6**

|              |       |
|--------------|-------|
| Reading Time | 12:50 |
|--------------|-------|

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 56.87                                                                             |
| pH                               | 7.42                                                                              |
| Conductivity (mS/cm)             | 626.8                                                                             |
| Turbidity (NTU)                  | 74                                                                                |
| Dissolved Oxygen (mg/L)          | 3.04                                                                              |
| Temperature (Degrees Celsius)    | 11.6                                                                              |
| Redox (ORP mV)                   | -122.6                                                                            |
| parameters                       | @12:50, DTW:56.87, pH:7.42, temp:11.6, cond:626.8, turb:74, DO:3.04, redox:-122.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:55, DTW:57.91, pH:7.44, temp:11.3, cond:625.1, turb:65.6, DO:3.04, redox:-125.1**

|                                  |                                                                                     |
|----------------------------------|-------------------------------------------------------------------------------------|
| Reading Time                     | 12:55                                                                               |
| Minutes Elapsed between readings | 5                                                                                   |
| Rate (mL/min)                    | 100                                                                                 |
| Depth to Water (ft)              | 57.91                                                                               |
| pH                               | 7.44                                                                                |
| Conductivity (mS/cm)             | 625.1                                                                               |
| Turbidity (NTU)                  | 65.6                                                                                |
| Dissolved Oxygen (mg/L)          | 3.04                                                                                |
| Temperature (Degrees Celsius)    | 11.3                                                                                |
| Redox (ORP mV)                   | -125.1                                                                              |
| parameters                       | @12:55, DTW:57.91, pH:7.44, temp:11.3, cond:625.1, turb:65.6, DO:3.04, redox:-125.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:00, DTW:59.3, pH:7.45, temp:11.5, cond:623.1, turb:70.5, DO:2.87, redox:-127.3**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 13:00                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 59.3                                                                               |
| pH                               | 7.45                                                                               |
| Conductivity (mS/cm)             | 623.1                                                                              |
| Turbidity (NTU)                  | 70.5                                                                               |
| Dissolved Oxygen (mg/L)          | 2.87                                                                               |
| Temperature (Degrees Celsius)    | 11.5                                                                               |
| Redox (ORP mV)                   | -127.3                                                                             |
| parameters                       | @13:00, DTW:59.3, pH:7.45, temp:11.5, cond:623.1, turb:70.5, DO:2.87, redox:-127.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:05, DTW:60.55, pH:7.46, temp:11.1, cond:629.1, turb:74.8, DO:2.9, redox:-129.1**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 13:05                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 60.55                                                                              |
| pH                               | 7.46                                                                               |
| Conductivity (mS/cm)             | 629.1                                                                              |
| Turbidity (NTU)                  | 74.8                                                                               |
| Dissolved Oxygen (mg/L)          | 2.9                                                                                |
| Temperature (Degrees Celsius)    | 11.1                                                                               |
| Redox (ORP mV)                   | -129.1                                                                             |
| parameters                       | @13:05, DTW:60.55, pH:7.46, temp:11.1, cond:629.1, turb:74.8, DO:2.9, redox:-129.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:10, DTW:61.85, pH:7.45, temp:11.5, cond:623.2, turb:86, DO:2.51, redox:-126.6**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 61.85                                                                             |
| pH                               | 7.45                                                                              |
| Conductivity (mS/cm)             | 623.2                                                                             |
| Turbidity (NTU)                  | 86                                                                                |
| Dissolved Oxygen (mg/L)          | 2.51                                                                              |
| Temperature (Degrees Celsius)    | 11.5                                                                              |
| Redox (ORP mV)                   | -126.6                                                                            |
| parameters                       | @13:10, DTW:61.85, pH:7.45, temp:11.5, cond:623.2, turb:86, DO:2.51, redox:-126.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:15, DTW:62.62, pH:7.46, temp:11.2, cond:628.1, turb:92.5, DO:2.4, redox:-130.3**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 13:15                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 62.62                                                                              |
| pH                               | 7.46                                                                               |
| Conductivity (mS/cm)             | 628.1                                                                              |
| Turbidity (NTU)                  | 92.5                                                                               |
| Dissolved Oxygen (mg/L)          | 2.4                                                                                |
| Temperature (Degrees Celsius)    | 11.2                                                                               |
| Redox (ORP mV)                   | -130.3                                                                             |
| parameters                       | @13:15, DTW:62.62, pH:7.46, temp:11.2, cond:628.1, turb:92.5, DO:2.4, redox:-130.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:20, DTW:64.3, pH:7.47, temp:11.5, cond:628.5, turb:69, DO:2.21, redox:-132.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 64.3                                                                             |
| pH                               | 7.47                                                                             |
| Conductivity (mS/cm)             | 628.5                                                                            |
| Turbidity (NTU)                  | 69                                                                               |
| Dissolved Oxygen (mg/L)          | 2.21                                                                             |
| Temperature (Degrees Celsius)    | 11.5                                                                             |
| Redox (ORP mV)                   | -132.2                                                                           |
| parameters                       | @13:20, DTW:64.3, pH:7.47, temp:11.5, cond:628.5, turb:69, DO:2.21, redox:-132.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:25, DTW:65.46, pH:7.47, temp:11.5, cond:626.2, turb:72.1, DO:2.1, redox:-132.8**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 13:25                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 65.46                                                                              |
| pH                               | 7.47                                                                               |
| Conductivity (mS/cm)             | 626.2                                                                              |
| Turbidity (NTU)                  | 72.1                                                                               |
| Dissolved Oxygen (mg/L)          | 2.1                                                                                |
| Temperature (Degrees Celsius)    | 11.5                                                                               |
| Redox (ORP mV)                   | -132.8                                                                             |
| parameters                       | @13:25, DTW:65.46, pH:7.47, temp:11.5, cond:626.2, turb:72.1, DO:2.1, redox:-132.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:30, DTW:66.92, pH:7.48, temp:11.4, cond:624.5, turb:71.2, DO:2.04, redox:-133.7**

|                                  |                                                                                     |
|----------------------------------|-------------------------------------------------------------------------------------|
| Reading Time                     | 13:30                                                                               |
| Minutes Elapsed between readings | 5                                                                                   |
| Rate (mL/min)                    | 100                                                                                 |
| Depth to Water (ft)              | 66.92                                                                               |
| pH                               | 7.48                                                                                |
| Conductivity (mS/cm)             | 624.5                                                                               |
| Turbidity (NTU)                  | 71.2                                                                                |
| Dissolved Oxygen (mg/L)          | 2.04                                                                                |
| Temperature (Degrees Celsius)    | 11.4                                                                                |
| Redox (ORP mV)                   | -133.7                                                                              |
| parameters                       | @13:30, DTW:66.92, pH:7.48, temp:11.4, cond:624.5, turb:71.2, DO:2.04, redox:-133.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 13:31   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 4       |
| Well Volumes Purged           | 0.7     |

### Sample Information

|               |                     |
|---------------|---------------------|
| Sample Time   | 13:31               |
| Color         | Slight grayish turb |
| Notable odors | Slight odor         |

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW-18-93 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature

A handwritten signature in black ink that reads "Gary Schaefer". The signature is written in a cursive, flowing style.

Signed 2019-12-06 18:38:10 UTC

## 2019-03-06, MW-18-94, MW-18-94

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-03-06 12:39:55 EST by Billy Cobern    |
| Updated                                                                                           | 2019-03-06 13:28:52 EST by Christine Gregg |
| Location                                                                                          | 42.74430488, -84.58394132                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-03-06                                 |
| Well Identification                                                                               | MW-18-94                                   |
| Well ID                                                                                           | MW-18-94                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy 18 degrees                          |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 57.45         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 79.65         |
| Water Column                                                                                                                                                                                                                                              | 22.2          |
| Gallons in Well                                                                                                                                                                                                                                           | 3.61          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 77            |
| Purge Start                                                                                                                                                                                                                                               | 12:40         |

### @12:40, DTW:57.45, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 12:40                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 57.45                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @12:40, DTW:57.45, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:45, DTW:57.47, pH:7.47, temp:7.5, cond:1.55, turb:67.7, DO:0.67, redox:3.2

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 57.47 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.47  |



|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.55                                                                           |
| Turbidity (NTU)               | 67.7                                                                           |
| Dissolved Oxygen (mg/L)       | 0.67                                                                           |
| Temperature (Degrees Celsius) | 7.5                                                                            |
| Redox (ORP mV)                | 3.2                                                                            |
| parameters                    | @12:45, DTW:57.47, pH:7.47, temp:7.5, cond:1.55, turb:67.7, DO:0.67, redox:3.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:50, DTW:57.47, pH:7.46, temp:7.4, cond:1.57, turb:26.8, DO:0.69, redox:1.5**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:50                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 57.47                                                                          |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 7.46                                                                           |
| Conductivity (mS/cm)             | 1.57                                                                           |
| Turbidity (NTU)                  | 26.8                                                                           |
| Dissolved Oxygen (mg/L)          | 0.69                                                                           |
| Temperature (Degrees Celsius)    | 7.4                                                                            |
| Redox (ORP mV)                   | 1.5                                                                            |
| parameters                       | @12:50, DTW:57.47, pH:7.46, temp:7.4, cond:1.57, turb:26.8, DO:0.69, redox:1.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:55, DTW:57.47, pH:7.45, temp:7.2, cond:1.6, turb:14.6, DO:0.72, redox:0.2**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 12:55                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 57.47                                                                         |
| Milliliters Purged (total)       | 1500                                                                          |
| pH                               | 7.45                                                                          |
| Conductivity (mS/cm)             | 1.6                                                                           |
| Turbidity (NTU)                  | 14.6                                                                          |
| Dissolved Oxygen (mg/L)          | 0.72                                                                          |
| Temperature (Degrees Celsius)    | 7.2                                                                           |
| Redox (ORP mV)                   | 0.2                                                                           |
| parameters                       | @12:55, DTW:57.47, pH:7.45, temp:7.2, cond:1.6, turb:14.6, DO:0.72, redox:0.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:00, DTW:57.47, pH:7.45, temp:7, cond:1.6, turb:9.64, DO:0.71, redox:-0.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:00 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                          |
| Depth to Water (ft)           | 57.47                                                                        |
| Milliliters Purged (total)    | 2000                                                                         |
| pH                            | 7.45                                                                         |
| Conductivity (mS/cm)          | 1.6                                                                          |
| Turbidity (NTU)               | 9.64                                                                         |
| Dissolved Oxygen (mg/L)       | 0.71                                                                         |
| Temperature (Degrees Celsius) | 7                                                                            |
| Redox (ORP mV)                | -0.6                                                                         |
| parameters                    | @13:00, DTW:57.47, pH:7.45, temp:7, cond:1.6, turb:9.64, DO:0.71, redox:-0.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:05, DTW:57.47, pH:7.44, temp:7.2, cond:1.6, turb:9.01, DO:0.71, redox:-1.4**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:05                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 57.47                                                                          |
| Milliliters Purged (total)       | 2500                                                                           |
| pH                               | 7.44                                                                           |
| Conductivity (mS/cm)             | 1.6                                                                            |
| Turbidity (NTU)                  | 9.01                                                                           |
| Dissolved Oxygen (mg/L)          | 0.71                                                                           |
| Temperature (Degrees Celsius)    | 7.2                                                                            |
| Redox (ORP mV)                   | -1.4                                                                           |
| parameters                       | @13:05, DTW:57.47, pH:7.44, temp:7.2, cond:1.6, turb:9.01, DO:0.71, redox:-1.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:10, DTW:57.47, pH:7.44, temp:7.1, cond:1.62, turb:8.75, DO:0.72, redox:-2.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:10                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 57.47                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.44                                                                            |
| Conductivity (mS/cm)             | 1.62                                                                            |
| Turbidity (NTU)                  | 8.75                                                                            |
| Dissolved Oxygen (mg/L)          | 0.72                                                                            |
| Temperature (Degrees Celsius)    | 7.1                                                                             |
| Redox (ORP mV)                   | -2.1                                                                            |
| parameters                       | @13:10, DTW:57.47, pH:7.44, temp:7.1, cond:1.62, turb:8.75, DO:0.72, redox:-2.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 13:10       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 3000        |
| Well Volumes Purged           | 0.22        |

### Sample Information

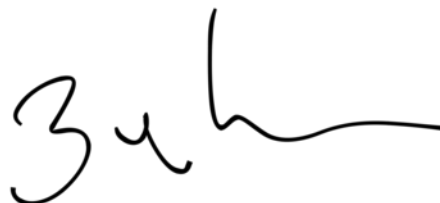
|               |       |
|---------------|-------|
| Sample Time   | 13:10 |
| Color         | Clear |
| Notable odors | No    |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |                 |
|--------------------------|-----------------|
| Well Location            | On site Plant 3 |
| Condition of Well        | OK              |
| Well Locked at Arrival   | No              |
| Well Locked at Departure | No              |
| Comments                 | Hasp broken     |
| Signature                |                 |

A handwritten signature in black ink, appearing to be 'Zuh' followed by a long horizontal flourish.

Signed 2019-03-06 17:42:32 UTC

## 2019-06-10, MW-18-94, MW-18-94

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 13:32:49 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-10 14:12:49 EDT by Christine Gregg |
| Location                                                                                          | 42.74426004, -84.58393243                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-10                                 |
| Well Identification                                                                               | MW-18-94                                   |
| Well ID                                                                                           | MW-18-94                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Cloudy, 70F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 57.15         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 79.65         |
| Water Column                                                                                                                                                                                                                                           | 22.5          |
| Gallons in Well                                                                                                                                                                                                                                        | 3.66          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Bladder       |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 77.15         |
| Purge Start                                                                                                                                                                                                                                            | 13:30         |

### @13:35, DTW:57.2, pH:7.04, temp:14.3, cond:3.13, turb:285, DO:3.47, redox:-110.3

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 13:35                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 57.2                                                                             |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 7.04                                                                             |
| Conductivity (mS/cm)          | 3.13                                                                             |
| Turbidity (NTU)               | 285                                                                              |
| Dissolved Oxygen (mg/L)       | 3.47                                                                             |
| Temperature (Degrees Celsius) | 14.3                                                                             |
| Redox (ORP mV)                | -110.3                                                                           |
| parameters                    | @13:35, DTW:57.2, pH:7.04, temp:14.3, cond:3.13, turb:285, DO:3.47, redox:-110.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:40, DTW:57.2, pH:7.03, temp:14.2, cond:3.14, turb:220, DO:3.38, redox:-110.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 57.2                                                                             |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 7.03                                                                             |
| Conductivity (mS/cm)             | 3.14                                                                             |
| Turbidity (NTU)                  | 220                                                                              |
| Dissolved Oxygen (mg/L)          | 3.38                                                                             |
| Temperature (Degrees Celsius)    | 14.2                                                                             |
| Redox (ORP mV)                   | -110.2                                                                           |
| parameters                       | @13:40, DTW:57.2, pH:7.03, temp:14.2, cond:3.14, turb:220, DO:3.38, redox:-110.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:45, DTW:57.2, pH:7.03, temp:14.2, cond:3.11, turb:165, DO:3.14, redox:-110.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 57.2                                                                             |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.03                                                                             |
| Conductivity (mS/cm)             | 3.11                                                                             |
| Turbidity (NTU)                  | 165                                                                              |
| Dissolved Oxygen (mg/L)          | 3.14                                                                             |
| Temperature (Degrees Celsius)    | 14.2                                                                             |
| Redox (ORP mV)                   | -110.3                                                                           |
| parameters                       | @13:45, DTW:57.2, pH:7.03, temp:14.2, cond:3.11, turb:165, DO:3.14, redox:-110.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:50, DTW:57.2, pH:7.02, temp:14.1, cond:3.16, turb:113, DO:2.87, redox:-112.2**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 13:50  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 200    |
| Depth to Water (ft)              | 57.2   |
| Milliliters Purged (total)       | 4000   |
| pH                               | 7.02   |
| Conductivity (mS/cm)             | 3.16   |
| Turbidity (NTU)                  | 113    |
| Dissolved Oxygen (mg/L)          | 2.87   |
| Temperature (Degrees Celsius)    | 14.1   |
| Redox (ORP mV)                   | -112.2 |

parameters

@13:50, DTW:57.2, pH:7.02, temp:14.1, cond:3.16, turb:113, DO:2.87, redox:-112.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:55, DTW:57.2, pH:7.02, temp:14.3, cond:3.16, turb:54.9, DO:2.91, redox:-112.3**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 13:55  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 200    |
| Depth to Water (ft)              | 57.2   |
| Milliliters Purged (total)       | 5000   |
| pH                               | 7.02   |
| Conductivity (mS/cm)             | 3.16   |
| Turbidity (NTU)                  | 54.9   |
| Dissolved Oxygen (mg/L)          | 2.91   |
| Temperature (Degrees Celsius)    | 14.3   |
| Redox (ORP mV)                   | -112.3 |

parameters

@13:55, DTW:57.2, pH:7.02, temp:14.3, cond:3.16, turb:54.9, DO:2.91, redox:-112.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:00, DTW:57.2, pH:7.03, temp:14, cond:3.15, turb:22.1, DO:2.88, redox:-114**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 57.2  |
| Milliliters Purged (total)       | 6000  |
| pH                               | 7.03  |
| Conductivity (mS/cm)             | 3.15  |
| Turbidity (NTU)                  | 22.1  |
| Dissolved Oxygen (mg/L)          | 2.88  |
| Temperature (Degrees Celsius)    | 14    |
| Redox (ORP mV)                   | -114  |

parameters

@14:00, DTW:57.2, pH:7.03, temp:14, cond:3.15, turb:22.1, DO:2.88, redox:-114

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:05, DTW:57.2, pH:7.03, temp:14.1, cond:3.15, turb:14.6, DO:2.85, redox:-114.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 57.2  |
| Milliliters Purged (total)       | 7000  |
| pH                               | 7.03  |
| Conductivity (mS/cm)             | 3.15  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Turbidity (NTU)               | 14.6                                                                              |
| Dissolved Oxygen (mg/L)       | 2.85                                                                              |
| Temperature (Degrees Celsius) | 14.1                                                                              |
| Redox (ORP mV)                | -114.3                                                                            |
| parameters                    | @14:05, DTW:57.2, pH:7.03, temp:14.1, cond:3.15, turb:14.6, DO:2.85, redox:-114.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:10, DTW:57.2, pH:7.03, temp:14.2, cond:3.15, turb:13.2, DO:2.83, redox:-114.6

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 57.2                                                                              |
| Milliliters Purged (total)       | 8000                                                                              |
| pH                               | 7.03                                                                              |
| Conductivity (mS/cm)             | 3.15                                                                              |
| Turbidity (NTU)                  | 13.2                                                                              |
| Dissolved Oxygen (mg/L)          | 2.83                                                                              |
| Temperature (Degrees Celsius)    | 14.2                                                                              |
| Redox (ORP mV)                   | -114.6                                                                            |
| parameters                       | @14:10, DTW:57.2, pH:7.03, temp:14.2, cond:3.15, turb:13.2, DO:2.83, redox:-114.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 14:20 |
|-----------|-------|

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:15 |
| Color         | Clear |
| Notable odors | None  |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |                                                                              |
|--------------------------|------------------------------------------------------------------------------|
| Condition of Well        | Fair. Stick up protective casing will no longer lock. J-plug locked instead. |
| Well Locked at Arrival   | No                                                                           |
| Well Locked at Departure | Yes                                                                          |

Signature

A handwritten signature in black ink, appearing to be 'Amal' followed by a stylized flourish.

Signed 2019-06-10 17:36:07 UTC

---



## 2019-12-06, MW-18-94

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-06 19:10:33 UTC by Gary Schafer |
| Updated                                                                                           | 2019-12-06 20:15:37 UTC by Gary Schafer |
| Location                                                                                          | 42.7443184191759, -84.5836997498615     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-12-06                              |
| Well ID                                                                                           | MW-18-94                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Overcast winds 8-10 mph                 |

### Evacuation Details

|                                                                                                                                                                                                                                                                   |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                  | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                          | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                       | 56.38         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                              | 79.65         |
| Water Column                                                                                                                                                                                                                                                      | 23.27         |
| Gallons in Well                                                                                                                                                                                                                                                   | 3.78          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1\text{foot}$ ] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                      | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                            | Bladder       |
| Sample Method                                                                                                                                                                                                                                                     | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                       | 14:11         |

### @14:15, DTW:56.48, pH:7.14, temp:12.4, cond:4266, turb:413, DO:2.76, redox:-131.5

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 14:15                                                                             |
| Rate (mL/min)                 | 100                                                                               |
| Depth to Water (ft)           | 56.48                                                                             |
| pH                            | 7.14                                                                              |
| Conductivity (mS/cm)          | 4266                                                                              |
| Turbidity (NTU)               | 413                                                                               |
| Dissolved Oxygen (mg/L)       | 2.76                                                                              |
| Temperature (Degrees Celsius) | 12.4                                                                              |
| Redox (ORP mV)                | -131.5                                                                            |
| parameters                    | @14:15, DTW:56.48, pH:7.14, temp:12.4, cond:4266, turb:413, DO:2.76, redox:-131.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:20, DTW:56.48, pH:7.09, temp:12.2, cond:4249, turb:315, DO:2.05, redox:-129.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 56.48                                                                             |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.09                                                                              |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 4249                                                                              |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 315                                                                               |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 2.05                                                                              |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 12.2                                                                              |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -129.3                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @14:20, DTW:56.48, pH:7.09, temp:12.2, cond:4249, turb:315, DO:2.05, redox:-129.3 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                   |

### **@14:25, DTW:56.48, pH:7.09, temp:12.6, cond:4295, turb:186, DO:1.62, redox:-125**

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 14:25                                                                           |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                               |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 100                                                                             |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 56.48                                                                           |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.09                                                                            |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 4295                                                                            |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 186                                                                             |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 1.62                                                                            |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 12.6                                                                            |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -125                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @14:25, DTW:56.48, pH:7.09, temp:12.6, cond:4295, turb:186, DO:1.62, redox:-125 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                 |

### **@14:30, DTW:56.48, pH:7.09, temp:12.5, cond:4284, turb:138, DO:1.47, redox:-122.2**

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 14:30                                                                             |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                                 |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 100                                                                               |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 56.48                                                                             |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.09                                                                              |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 4284                                                                              |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 138                                                                               |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 1.47                                                                              |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 12.5                                                                              |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -122.2                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @14:30, DTW:56.48, pH:7.09, temp:12.5, cond:4284, turb:138, DO:1.47, redox:-122.2 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                   |

### **@14:35, DTW:56.48, pH:7.1, temp:12.7, cond:4324, turb:98.3, DO:1.22, redox:-119.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:35 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                               |
| Depth to Water (ft)           | 56.48                                                                             |
| pH                            | 7.1                                                                               |
| Conductivity (mS/cm)          | 4324                                                                              |
| Turbidity (NTU)               | 98.3                                                                              |
| Dissolved Oxygen (mg/L)       | 1.22                                                                              |
| Temperature (Degrees Celsius) | 12.7                                                                              |
| Redox (ORP mV)                | -119.6                                                                            |
| parameters                    | @14:35, DTW:56.48, pH:7.1, temp:12.7, cond:4324, turb:98.3, DO:1.22, redox:-119.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:40, DTW:56.48, pH:7.1, temp:12.7, cond:4308, turb:74.5, DO:1.05, redox:-117.6**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:40                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 56.48                                                                             |
| pH                               | 7.1                                                                               |
| Conductivity (mS/cm)             | 4308                                                                              |
| Turbidity (NTU)                  | 74.5                                                                              |
| Dissolved Oxygen (mg/L)          | 1.05                                                                              |
| Temperature (Degrees Celsius)    | 12.7                                                                              |
| Redox (ORP mV)                   | -117.6                                                                            |
| parameters                       | @14:40, DTW:56.48, pH:7.1, temp:12.7, cond:4308, turb:74.5, DO:1.05, redox:-117.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:45, DTW:56.48, pH:7.1, temp:12.1, cond:4280, turb:57.6, DO:0.92, redox:-115.8**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:45                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 56.48                                                                             |
| pH                               | 7.1                                                                               |
| Conductivity (mS/cm)             | 4280                                                                              |
| Turbidity (NTU)                  | 57.6                                                                              |
| Dissolved Oxygen (mg/L)          | 0.92                                                                              |
| Temperature (Degrees Celsius)    | 12.1                                                                              |
| Redox (ORP mV)                   | -115.8                                                                            |
| parameters                       | @14:45, DTW:56.48, pH:7.1, temp:12.1, cond:4280, turb:57.6, DO:0.92, redox:-115.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:50, DTW:56.48, pH:7.1, temp:12.6, cond:4270, turb:47, DO:0.75, redox:-114.5**

|              |       |
|--------------|-------|
| Reading Time | 14:50 |
|--------------|-------|

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 56.48                                                                           |
| pH                               | 7.1                                                                             |
| Conductivity (mS/cm)             | 4270                                                                            |
| Turbidity (NTU)                  | 47                                                                              |
| Dissolved Oxygen (mg/L)          | 0.75                                                                            |
| Temperature (Degrees Celsius)    | 12.6                                                                            |
| Redox (ORP mV)                   | -114.5                                                                          |
| parameters                       | @14:50, DTW:56.48, pH:7.1, temp:12.6, cond:4270, turb:47, DO:0.75, redox:-114.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:55, DTW:56.48, pH:7.1, temp:12.3, cond:4261, turb:39.6, DO:0.68, redox:-113.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:55                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 56.48                                                                             |
| pH                               | 7.1                                                                               |
| Conductivity (mS/cm)             | 4261                                                                              |
| Turbidity (NTU)                  | 39.6                                                                              |
| Dissolved Oxygen (mg/L)          | 0.68                                                                              |
| Temperature (Degrees Celsius)    | 12.3                                                                              |
| Redox (ORP mV)                   | -113.5                                                                            |
| parameters                       | @14:55, DTW:56.48, pH:7.1, temp:12.3, cond:4261, turb:39.6, DO:0.68, redox:-113.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:00, DTW:56.51, pH:7.1, temp:12.6, cond:4263, turb:36.7, DO:0.57, redox:-113**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 56.51                                                                           |
| pH                               | 7.1                                                                             |
| Conductivity (mS/cm)             | 4263                                                                            |
| Turbidity (NTU)                  | 36.7                                                                            |
| Dissolved Oxygen (mg/L)          | 0.57                                                                            |
| Temperature (Degrees Celsius)    | 12.6                                                                            |
| Redox (ORP mV)                   | -113                                                                            |
| parameters                       | @15:00, DTW:56.51, pH:7.1, temp:12.6, cond:4263, turb:36.7, DO:0.57, redox:-113 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:05, DTW:56.51, pH:7.11, temp:12.7, cond:4268, turb:30.5, DO:0.52, redox:-112.3**

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 15:05                                                                              |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                                  |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 100                                                                                |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 56.51                                                                              |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.11                                                                               |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 4268                                                                               |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 30.5                                                                               |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.52                                                                               |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 12.7                                                                               |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -112.3                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @15:05, DTW:56.51, pH:7.11, temp:12.7, cond:4268, turb:30.5, DO:0.52, redox:-112.3 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                    |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 15:07                                                                              |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Gallons                                                                            |
| Total Gallons Purged                                                                                                                                                                                                                                                                                                                             | 4                                                                                  |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 1.06                                                                               |

## Sample Information

|               |             |
|---------------|-------------|
| Sample Time   | 15:06       |
| Color         | Slight turb |
| Notable odors | Slight odor |

## Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW-18-94 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature

Dany  
Schaker

Signed 2019-12-06 20:13:09 UTC

---

## 2019-03-05, MW-18-95, MW-18-95

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-03-05 13:22:42 EST by Billy Cobern    |
| Updated                                                                                           | 2019-03-05 13:56:40 EST by Christine Gregg |
| Location                                                                                          | 42.74428527, -84.58284379                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-03-05                                 |
| Well Identification                                                                               | MW-18-95                                   |
| Well ID                                                                                           | MW-18-95                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | DUP-02                                     |
| Weather                                                                                           | Cloudy Windy Snow 15 degrees               |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 6.93          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 12.5          |
| Water Column                                                                                                                                                                                                                                           | 5.57          |
| Gallons in Well                                                                                                                                                                                                                                        | 0.91          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 10            |
| Purge Start                                                                                                                                                                                                                                            | 13:20         |

### @13:20, DTW:6.93, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 13:20                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 6.93                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @13:20, DTW:6.93, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:25, DTW:7.17, pH:8.99, temp:2.5, cond:0.436, turb:14.4, DO:1.06, redox:-4.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 7.17  |
| Milliliters Purged (total)       | 500   |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| pH                            | 8.99                                                                            |
| Conductivity (mS/cm)          | 0.436                                                                           |
| Turbidity (NTU)               | 14.4                                                                            |
| Dissolved Oxygen (mg/L)       | 1.06                                                                            |
| Temperature (Degrees Celsius) | 2.5                                                                             |
| Redox (ORP mV)                | -4.7                                                                            |
| parameters                    | @13:25, DTW:7.17, pH:8.99, temp:2.5, cond:0.436, turb:14.4, DO:1.06, redox:-4.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:30, DTW:7.25, pH:9.3, temp:2.4, cond:0.394, turb:9.45, DO:0.49, redox:-12.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 7.25                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 9.3                                                                             |
| Conductivity (mS/cm)             | 0.394                                                                           |
| Turbidity (NTU)                  | 9.45                                                                            |
| Dissolved Oxygen (mg/L)          | 0.49                                                                            |
| Temperature (Degrees Celsius)    | 2.4                                                                             |
| Redox (ORP mV)                   | -12.4                                                                           |
| parameters                       | @13:30, DTW:7.25, pH:9.3, temp:2.4, cond:0.394, turb:9.45, DO:0.49, redox:-12.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:35, DTW:7.25, pH:9.45, temp:2.1, cond:0.367, turb:9.12, DO:0.39, redox:-14.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 7.25                                                                             |
| Milliliters Purged (total)       | 1500                                                                             |
| pH                               | 9.45                                                                             |
| Conductivity (mS/cm)             | 0.367                                                                            |
| Turbidity (NTU)                  | 9.12                                                                             |
| Dissolved Oxygen (mg/L)          | 0.39                                                                             |
| Temperature (Degrees Celsius)    | 2.1                                                                              |
| Redox (ORP mV)                   | -14.6                                                                            |
| parameters                       | @13:35, DTW:7.25, pH:9.45, temp:2.1, cond:0.367, turb:9.12, DO:0.39, redox:-14.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:7.25, pH:9.49, temp:1.9, cond:0.36, turb:8.78, DO:0.37, redox:-17.5**

|              |       |
|--------------|-------|
| Reading Time | 13:40 |
|--------------|-------|



|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 7.25                                                                            |
| Milliliters Purged (total)       | 2000                                                                            |
| pH                               | 9.49                                                                            |
| Conductivity (mS/cm)             | 0.36                                                                            |
| Turbidity (NTU)                  | 8.78                                                                            |
| Dissolved Oxygen (mg/L)          | 0.37                                                                            |
| Temperature (Degrees Celsius)    | 1.9                                                                             |
| Redox (ORP mV)                   | -17.5                                                                           |
| parameters                       | @13:40, DTW:7.25, pH:9.49, temp:1.9, cond:0.36, turb:8.78, DO:0.37, redox:-17.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:45, DTW:7.25, pH:9.53, temp:1.8, cond:0.356, turb:8.69, DO:0.38, redox:-19.4

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 7.25                                                                             |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 9.53                                                                             |
| Conductivity (mS/cm)             | 0.356                                                                            |
| Turbidity (NTU)                  | 8.69                                                                             |
| Dissolved Oxygen (mg/L)          | 0.38                                                                             |
| Temperature (Degrees Celsius)    | 1.8                                                                              |
| Redox (ORP mV)                   | -19.4                                                                            |
| parameters                       | @13:45, DTW:7.25, pH:9.53, temp:1.8, cond:0.356, turb:8.69, DO:0.38, redox:-19.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 13:45       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 2500        |
| Well Volumes Purged           | 0.73        |

### Sample Information

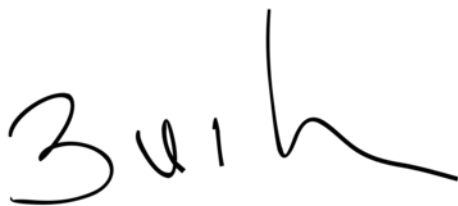
|               |       |
|---------------|-------|
| Sample Time   | 13:45 |
| Color         | Clear |
| Notable odors | No    |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 4              |
| Preservative         | None           |

## Well Information

|                          |                 |
|--------------------------|-----------------|
| Well Location            | On site Plant 3 |
| Condition of Well        | Good            |
| Well Locked at Arrival   | No              |
| Well Locked at Departure | Yes             |
| Comments                 | Installed lock  |
| Signature                |                 |

A handwritten signature in black ink, appearing to read 'Zuik', written in a cursive style.

Signed 2019-03-05 18:24:46 UTC

## 2019-06-10, MW-18-95, MW-18-95

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-10 10:31:25 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-10 11:10:33 EDT by Christine Gregg |
| Location                                                                                          | 42.74426968, -84.58264313                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-10                                 |
| Well Identification                                                                               | MW-18-95                                   |
| Well ID                                                                                           | MW-18-95                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Cloudy, 70F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 6.22          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 12.53         |
| Water Column                                                                                                                                                                                                                                           | 6.31          |
| Gallons in Well                                                                                                                                                                                                                                        | 1.03          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 10.03         |
| Purge Start                                                                                                                                                                                                                                            | 10:30         |

### @10:35, DTW:6.28, pH:7.49, temp:14.5, cond:0.422, turb:4.62, DO:0.17, redox:-127.6

|                               |                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------|
| Reading Time                  | 10:35                                                                              |
| Rate (mL/min)                 | 200                                                                                |
| Depth to Water (ft)           | 6.28                                                                               |
| Milliliters Purged (total)    | 1000                                                                               |
| pH                            | 7.49                                                                               |
| Conductivity (mS/cm)          | 0.422                                                                              |
| Turbidity (NTU)               | 4.62                                                                               |
| Dissolved Oxygen (mg/L)       | 0.17                                                                               |
| Temperature (Degrees Celsius) | 14.5                                                                               |
| Redox (ORP mV)                | -127.6                                                                             |
| parameters                    | @10:35, DTW:6.28, pH:7.49, temp:14.5, cond:0.422, turb:4.62, DO:0.17, redox:-127.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:40, DTW:6.3, pH:7.71, temp:14.6, cond:0.399, turb:3.72, DO:0.1, redox:-175.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 6.3                                                                              |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 7.71                                                                             |
| Conductivity (mS/cm)             | 0.399                                                                            |
| Turbidity (NTU)                  | 3.72                                                                             |
| Dissolved Oxygen (mg/L)          | 0.1                                                                              |
| Temperature (Degrees Celsius)    | 14.6                                                                             |
| Redox (ORP mV)                   | -175.2                                                                           |
| parameters                       | @10:40, DTW:6.3, pH:7.71, temp:14.6, cond:0.399, turb:3.72, DO:0.1, redox:-175.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:45, DTW:6.3, pH:8.61, temp:14.5, cond:0.355, turb:2.62, DO:0.09, redox:-268.3**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:45                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 6.3                                                                               |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 8.61                                                                              |
| Conductivity (mS/cm)             | 0.355                                                                             |
| Turbidity (NTU)                  | 2.62                                                                              |
| Dissolved Oxygen (mg/L)          | 0.09                                                                              |
| Temperature (Degrees Celsius)    | 14.5                                                                              |
| Redox (ORP mV)                   | -268.3                                                                            |
| parameters                       | @10:45, DTW:6.3, pH:8.61, temp:14.5, cond:0.355, turb:2.62, DO:0.09, redox:-268.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:50, DTW:6.3, pH:9.23, temp:14.6, cond:0.349, turb:2.17, DO:0.28, redox:-183.7**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 10:50  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 200    |
| Depth to Water (ft)              | 6.3    |
| Milliliters Purged (total)       | 4000   |
| pH                               | 9.23   |
| Conductivity (mS/cm)             | 0.349  |
| Turbidity (NTU)                  | 2.17   |
| Dissolved Oxygen (mg/L)          | 0.28   |
| Temperature (Degrees Celsius)    | 14.6   |
| Redox (ORP mV)                   | -183.7 |

parameters

@10:50, DTW:6.3, pH:9.23, temp:14.6, cond:0.349, turb:2.17, DO:0.28, redox:-183.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:55, DTW:6.3, pH:9.27, temp:15.6, cond:0.352, turb:1.9, DO:0.29, redox:-171**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 6.3   |
| Milliliters Purged (total)       | 5000  |
| pH                               | 9.27  |
| Conductivity (mS/cm)             | 0.352 |
| Turbidity (NTU)                  | 1.9   |
| Dissolved Oxygen (mg/L)          | 0.29  |
| Temperature (Degrees Celsius)    | 15.6  |
| Redox (ORP mV)                   | -171  |

parameters

@10:55, DTW:6.3, pH:9.27, temp:15.6, cond:0.352, turb:1.9, DO:0.29, redox:-171

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:00, DTW:6.3, pH:9.29, temp:14.7, cond:0.352, turb:1.44, DO:0.31, redox:-165.6**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 11:00  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 200    |
| Depth to Water (ft)              | 6.3    |
| Milliliters Purged (total)       | 6000   |
| pH                               | 9.29   |
| Conductivity (mS/cm)             | 0.352  |
| Turbidity (NTU)                  | 1.44   |
| Dissolved Oxygen (mg/L)          | 0.31   |
| Temperature (Degrees Celsius)    | 14.7   |
| Redox (ORP mV)                   | -165.6 |

parameters

@11:00, DTW:6.3, pH:9.29, temp:14.7, cond:0.352, turb:1.44, DO:0.31, redox:-165.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:05, DTW:6.3, pH:9.26, temp:14.7, cond:0.362, turb:1.33, DO:0.32, redox:-163.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 6.3   |
| Milliliters Purged (total)       | 7000  |
| pH                               | 9.26  |
| Conductivity (mS/cm)             | 0.362 |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 1.33                                                                              |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.32                                                                              |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 14.7                                                                              |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -163.2                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @11:05, DTW:6.3, pH:9.26, temp:14.7, cond:0.362, turb:1.33, DO:0.32, redox:-163.2 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                   |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 11:15                                                                             |

## Sample Information

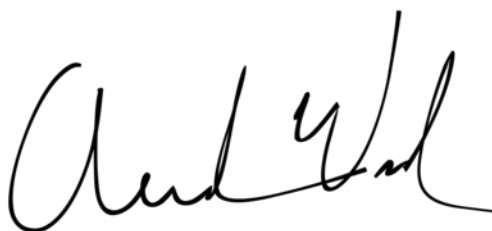
|               |       |
|---------------|-------|
| Sample Time   | 11:10 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |     |
|--------------------------|-----|
| Well Locked at Arrival   | Yes |
| Well Locked at Departure | Yes |
| Signature                |     |



Signed 2019-06-10 14:32:52 UTC

## 2019-08-29, MW-18-95

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 19:36:02 UTC by Gary Schafer |
| Updated                                                                                           | 2020-03-31 19:46:01 UTC by Gary Schafer |
| Location                                                                                          | 42.5032146007835, -83.4427181302674     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-08-29                              |
| Well ID                                                                                           | MW-18-95                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 7.98          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 12.59         |
| Water Column                                                                                                                                                                                                                                              | 4.61          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                               | 14:25         |

### @14:30, DTW:8, pH:3.95, temp:24.1, cond:0.56, turb:4.79, DO:0.22, redox:99.5

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Reading Time                  | 14:30                                                                        |
| Rate (mL/min)                 | 100                                                                          |
| Depth to Water (ft)           | 8                                                                            |
| pH                            | 3.95                                                                         |
| Conductivity (mS/cm)          | 0.56                                                                         |
| Turbidity (NTU)               | 4.79                                                                         |
| Dissolved Oxygen (mg/L)       | 0.22                                                                         |
| Temperature (Degrees Celsius) | 24.1                                                                         |
| Redox (ORP mV)                | 99.5                                                                         |
| parameters                    | @14:30, DTW:8, pH:3.95, temp:24.1, cond:0.56, turb:4.79, DO:0.22, redox:99.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:35, DTW:8.82, pH:3.97, temp:23.9, cond:0.55, turb:2.95, DO:0.22, redox:71.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 8.82  |
| pH                               | 3.97  |
| Conductivity (mS/cm)             | 0.55  |
| Turbidity (NTU)                  | 2.95  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.22                                                                            |
| Temperature (Degrees Celsius) | 23.9                                                                            |
| Redox (ORP mV)                | 71.1                                                                            |
| parameters                    | @14:35, DTW:8.82, pH:3.97, temp:23.9, cond:0.55, turb:2.95, DO:0.22, redox:71.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:40, DTW:8.95, pH:3.96, temp:24.1, cond:0.55, turb:2.97, DO:0.21, redox:61**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:40                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 8.95                                                                          |
| pH                               | 3.96                                                                          |
| Conductivity (mS/cm)             | 0.55                                                                          |
| Turbidity (NTU)                  | 2.97                                                                          |
| Dissolved Oxygen (mg/L)          | 0.21                                                                          |
| Temperature (Degrees Celsius)    | 24.1                                                                          |
| Redox (ORP mV)                   | 61                                                                            |
| parameters                       | @14:40, DTW:8.95, pH:3.96, temp:24.1, cond:0.55, turb:2.97, DO:0.21, redox:61 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:45, DTW:8.95, pH:3.97, temp:23.9, cond:0.55, turb:2.32, DO:0.28, redox:51.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 8.95                                                                            |
| pH                               | 3.97                                                                            |
| Conductivity (mS/cm)             | 0.55                                                                            |
| Turbidity (NTU)                  | 2.32                                                                            |
| Dissolved Oxygen (mg/L)          | 0.28                                                                            |
| Temperature (Degrees Celsius)    | 23.9                                                                            |
| Redox (ORP mV)                   | 51.8                                                                            |
| parameters                       | @14:45, DTW:8.95, pH:3.97, temp:23.9, cond:0.55, turb:2.32, DO:0.28, redox:51.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:50, DTW:8.97, pH:4.09, temp:24.2, cond:0.55, turb:2.58, DO:0.3, redox:45.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 8.97  |
| pH                               | 4.09  |
| Conductivity (mS/cm)             | 0.55  |



|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Turbidity (NTU)               | 2.58                                                                           |
| Dissolved Oxygen (mg/L)       | 0.3                                                                            |
| Temperature (Degrees Celsius) | 24.2                                                                           |
| Redox (ORP mV)                | 45.7                                                                           |
| parameters                    | @14:50, DTW:8.97, pH:4.09, temp:24.2, cond:0.55, turb:2.58, DO:0.3, redox:45.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:55, DTW:9.01, pH:4.04, temp:24.7, cond:0.54, turb:1.9, DO:0.28, redox:38.5**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:55                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 9.01                                                                           |
| pH                               | 4.04                                                                           |
| Conductivity (mS/cm)             | 0.54                                                                           |
| Turbidity (NTU)                  | 1.9                                                                            |
| Dissolved Oxygen (mg/L)          | 0.28                                                                           |
| Temperature (Degrees Celsius)    | 24.7                                                                           |
| Redox (ORP mV)                   | 38.5                                                                           |
| parameters                       | @14:55, DTW:9.01, pH:4.04, temp:24.7, cond:0.54, turb:1.9, DO:0.28, redox:38.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:00, DTW:9.05, pH:4.06, temp:24.7, cond:0.54, turb:2.24, DO:0.32, redox:36.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 9.05                                                                            |
| pH                               | 4.06                                                                            |
| Conductivity (mS/cm)             | 0.54                                                                            |
| Turbidity (NTU)                  | 2.24                                                                            |
| Dissolved Oxygen (mg/L)          | 0.32                                                                            |
| Temperature (Degrees Celsius)    | 24.7                                                                            |
| Redox (ORP mV)                   | 36.8                                                                            |
| parameters                       | @15:00, DTW:9.05, pH:4.06, temp:24.7, cond:0.54, turb:2.24, DO:0.32, redox:36.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 15:07   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 1.5     |

### **Sample Information**

|             |       |
|-------------|-------|
| Sample Time | 15:02 |
|-------------|-------|

## Well Information

|                          |                                  |
|--------------------------|----------------------------------|
| Well Location            | MW 18-95                         |
| Condition of Well        | Good                             |
| Well Locked at Arrival   | Yes                              |
| Well Locked at Departure | Yes                              |
| Comments                 | Well 18-95 was a dup sample also |
| Signature                |                                  |

A handwritten signature in black ink, reading "Gary Schuber". The signature is written in a cursive style with a large, stylized "G" and "S".

Signed 2020-03-31 19:45:20 UTC

## 2019-12-06, MW-18-95

|                                                                                                   |                                           |
|---------------------------------------------------------------------------------------------------|-------------------------------------------|
| Created                                                                                           | 2019-12-06 13:37:58 UTC by Melissa Weaver |
| Updated                                                                                           | 2019-12-06 21:42:21 UTC by Melissa Weaver |
| Location                                                                                          | 42.7443245798747, -84.5826491621179       |
| Project Number                                                                                    | 30006870                                  |
| Project Name / Location                                                                           | RACER Lansing, MI                         |
| Sampler Name                                                                                      | Melissa Weaver                            |
| Date                                                                                              | 2019-12-06                                |
| Well ID                                                                                           | MW-18-95                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                       |
| Weather                                                                                           | 33 cloudy                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 6.65          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 12.45         |
| Water Column                                                                                                                                                                                                                                           | 5.8           |
| Gallons in Well                                                                                                                                                                                                                                        | 0.94          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 10            |
| Purge Start                                                                                                                                                                                                                                            | 09:11         |

### @09:15, DTW:6.75, pH:7.39, temp:8.9, cond:0.603, turb:26.9, DO:15.8, redox:201.2

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 09:15                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 6.75                                                                             |
| pH                            | 7.39                                                                             |
| Conductivity (mS/cm)          | 0.603                                                                            |
| Turbidity (NTU)               | 26.9                                                                             |
| Dissolved Oxygen (mg/L)       | 15.8                                                                             |
| Temperature (Degrees Celsius) | 8.9                                                                              |
| Redox (ORP mV)                | 201.2                                                                            |
| parameters                    | @09:15, DTW:6.75, pH:7.39, temp:8.9, cond:0.603, turb:26.9, DO:15.8, redox:201.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:20, DTW:6.79, pH:7.41, temp:8.9, cond:0.578, turb:25.5, DO:2.53, redox:198

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:20 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 6.79                                                                           |
| pH                            | 7.41                                                                           |
| Conductivity (mS/cm)          | 0.578                                                                          |
| Turbidity (NTU)               | 25.5                                                                           |
| Dissolved Oxygen (mg/L)       | 2.53                                                                           |
| Temperature (Degrees Celsius) | 8.9                                                                            |
| Redox (ORP mV)                | 198                                                                            |
| parameters                    | @09:20, DTW:6.79, pH:7.41, temp:8.9, cond:0.578, turb:25.5, DO:2.53, redox:198 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:25, DTW:6.8, pH:7.49, temp:9, cond:0.565, turb:24.1, DO:3.29, redox:194.8**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 09:25                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 6.8                                                                           |
| pH                               | 7.49                                                                          |
| Conductivity (mS/cm)             | 0.565                                                                         |
| Turbidity (NTU)                  | 24.1                                                                          |
| Dissolved Oxygen (mg/L)          | 3.29                                                                          |
| Temperature (Degrees Celsius)    | 9                                                                             |
| Redox (ORP mV)                   | 194.8                                                                         |
| parameters                       | @09:25, DTW:6.8, pH:7.49, temp:9, cond:0.565, turb:24.1, DO:3.29, redox:194.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:30, DTW:6.82, pH:7.51, temp:9.2, cond:0.553, turb:19.8, DO:3.57, redox:190.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 6.82                                                                             |
| pH                               | 7.51                                                                             |
| Conductivity (mS/cm)             | 0.553                                                                            |
| Turbidity (NTU)                  | 19.8                                                                             |
| Dissolved Oxygen (mg/L)          | 3.57                                                                             |
| Temperature (Degrees Celsius)    | 9.2                                                                              |
| Redox (ORP mV)                   | 190.3                                                                            |
| parameters                       | @09:30, DTW:6.82, pH:7.51, temp:9.2, cond:0.553, turb:19.8, DO:3.57, redox:190.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:35, DTW:6.8, pH:7.55, temp:8.9, cond:0.54, turb:14.1, DO:4.11, redox:182.9**

|              |       |
|--------------|-------|
| Reading Time | 09:35 |
|--------------|-------|

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 6.8                                                                            |
| pH                               | 7.55                                                                           |
| Conductivity (mS/cm)             | 0.54                                                                           |
| Turbidity (NTU)                  | 14.1                                                                           |
| Dissolved Oxygen (mg/L)          | 4.11                                                                           |
| Temperature (Degrees Celsius)    | 8.9                                                                            |
| Redox (ORP mV)                   | 182.9                                                                          |
| parameters                       | @09:35, DTW:6.8, pH:7.55, temp:8.9, cond:0.54, turb:14.1, DO:4.11, redox:182.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:40, DTW:6.77, pH:7.55, temp:8.5, cond:0.543, turb:15.1, DO:4.36, redox:178.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 6.77                                                                             |
| pH                               | 7.55                                                                             |
| Conductivity (mS/cm)             | 0.543                                                                            |
| Turbidity (NTU)                  | 15.1                                                                             |
| Dissolved Oxygen (mg/L)          | 4.36                                                                             |
| Temperature (Degrees Celsius)    | 8.5                                                                              |
| Redox (ORP mV)                   | 178.7                                                                            |
| parameters                       | @09:40, DTW:6.77, pH:7.55, temp:8.5, cond:0.543, turb:15.1, DO:4.36, redox:178.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:45, DTW:6.8, pH:7.52, temp:8.7, cond:0.541, turb:14, DO:4.05, redox:176.8**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 6.8                                                                           |
| pH                               | 7.52                                                                          |
| Conductivity (mS/cm)             | 0.541                                                                         |
| Turbidity (NTU)                  | 14                                                                            |
| Dissolved Oxygen (mg/L)          | 4.05                                                                          |
| Temperature (Degrees Celsius)    | 8.7                                                                           |
| Redox (ORP mV)                   | 176.8                                                                         |
| parameters                       | @09:45, DTW:6.8, pH:7.52, temp:8.7, cond:0.541, turb:14, DO:4.05, redox:176.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:50, DTW:6.81, pH:7.51, temp:9, cond:0.54, turb:11.8, DO:4.29, redox:176.9**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 09:50                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 6.81                                                                          |
| pH                               | 7.51                                                                          |
| Conductivity (mS/cm)             | 0.54                                                                          |
| Turbidity (NTU)                  | 11.8                                                                          |
| Dissolved Oxygen (mg/L)          | 4.29                                                                          |
| Temperature (Degrees Celsius)    | 9                                                                             |
| Redox (ORP mV)                   | 176.9                                                                         |
| parameters                       | @09:50, DTW:6.81, pH:7.51, temp:9, cond:0.54, turb:11.8, DO:4.29, redox:176.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:55, DTW:6.82, pH:7.52, temp:8.8, cond:0.539, turb:5.15, DO:4.39, redox:178.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 6.82                                                                             |
| pH                               | 7.52                                                                             |
| Conductivity (mS/cm)             | 0.539                                                                            |
| Turbidity (NTU)                  | 5.15                                                                             |
| Dissolved Oxygen (mg/L)          | 4.39                                                                             |
| Temperature (Degrees Celsius)    | 8.8                                                                              |
| Redox (ORP mV)                   | 178.5                                                                            |
| parameters                       | @09:55, DTW:6.82, pH:7.52, temp:8.8, cond:0.539, turb:5.15, DO:4.39, redox:178.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:00, DTW:6.83, pH:7.51, temp:8.9, cond:0.538, turb:5.37, DO:4.6, redox:179**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 10:00                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 6.83                                                                          |
| pH                               | 7.51                                                                          |
| Conductivity (mS/cm)             | 0.538                                                                         |
| Turbidity (NTU)                  | 5.37                                                                          |
| Dissolved Oxygen (mg/L)          | 4.6                                                                           |
| Temperature (Degrees Celsius)    | 8.9                                                                           |
| Redox (ORP mV)                   | 179                                                                           |
| parameters                       | @10:00, DTW:6.83, pH:7.51, temp:8.9, cond:0.538, turb:5.37, DO:4.6, redox:179 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:05, DTW:6.83, pH:7.51, temp:8.9, cond:0.539, turb:5.69, DO:4.55, redox:179.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:05                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 6.83                                                                             |
| pH                               | 7.51                                                                             |
| Conductivity (mS/cm)             | 0.539                                                                            |
| Turbidity (NTU)                  | 5.69                                                                             |
| Dissolved Oxygen (mg/L)          | 4.55                                                                             |
| Temperature (Degrees Celsius)    | 8.9                                                                              |
| Redox (ORP mV)                   | 179.3                                                                            |
| parameters                       | @10:05, DTW:6.83, pH:7.51, temp:8.9, cond:0.539, turb:5.69, DO:4.55, redox:179.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 10:05 |
|-----------|-------|

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:05 |
| Color         | Clear |
| Notable odors | None  |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of stylized, cursive letters that appear to be 'M' and 'L'.

Signed 2019-12-06 21:42:20 UTC

---



## 2019-03-06, MW-18-97, MW-18-97

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-03-06 09:36:57 EST by Billy Cobern    |
| Updated                                                                                           | 2019-03-06 10:24:19 EST by Christine Gregg |
| Location                                                                                          | 42.74684724, -84.5846469                   |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-03-06                                 |
| Well Identification                                                                               | MW-18-97                                   |
| Well ID                                                                                           | MW-18-97                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | P Cloudy 11 degrees                        |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 60.82         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 91.75         |
| Water Column                                                                                                                                                                                                                                              | 30.93         |
| Gallons in Well                                                                                                                                                                                                                                           | 5.03          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 89            |
| Purge Start                                                                                                                                                                                                                                               | 09:10         |

### @09:10, DTW:60.82, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 09:10                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 60.82                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @09:10, DTW:60.82, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:15, DTW:60.85, pH:7.38, temp:5.9, cond:0.84, turb:12.9, DO:1.99, redox:109.4

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 60.85 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.38  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.84                                                                             |
| Turbidity (NTU)               | 12.9                                                                             |
| Dissolved Oxygen (mg/L)       | 1.99                                                                             |
| Temperature (Degrees Celsius) | 5.9                                                                              |
| Redox (ORP mV)                | 109.4                                                                            |
| parameters                    | @09:15, DTW:60.85, pH:7.38, temp:5.9, cond:0.84, turb:12.9, DO:1.99, redox:109.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:20, DTW:60.85, pH:7.39, temp:5.7, cond:0.83, turb:18.9, DO:1.87, redox:105.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 60.85                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.39                                                                             |
| Conductivity (mS/cm)             | 0.83                                                                             |
| Turbidity (NTU)                  | 18.9                                                                             |
| Dissolved Oxygen (mg/L)          | 1.87                                                                             |
| Temperature (Degrees Celsius)    | 5.7                                                                              |
| Redox (ORP mV)                   | 105.6                                                                            |
| parameters                       | @09:20, DTW:60.85, pH:7.39, temp:5.7, cond:0.83, turb:18.9, DO:1.87, redox:105.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:25, DTW:60.85, pH:7.39, temp:5.7, cond:0.84, turb:23.7, DO:1.77, redox:102.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 60.85                                                                            |
| Milliliters Purged (total)       | 1500                                                                             |
| pH                               | 7.39                                                                             |
| Conductivity (mS/cm)             | 0.84                                                                             |
| Turbidity (NTU)                  | 23.7                                                                             |
| Dissolved Oxygen (mg/L)          | 1.77                                                                             |
| Temperature (Degrees Celsius)    | 5.7                                                                              |
| Redox (ORP mV)                   | 102.3                                                                            |
| parameters                       | @09:25, DTW:60.85, pH:7.39, temp:5.7, cond:0.84, turb:23.7, DO:1.77, redox:102.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:30, DTW:60.85, pH:7.39, temp:5.8, cond:0.84, turb:28.9, DO:1.63, redox:100.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:30 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 60.85                                                                            |
| Milliliters Purged (total)    | 2000                                                                             |
| pH                            | 7.39                                                                             |
| Conductivity (mS/cm)          | 0.84                                                                             |
| Turbidity (NTU)               | 28.9                                                                             |
| Dissolved Oxygen (mg/L)       | 1.63                                                                             |
| Temperature (Degrees Celsius) | 5.8                                                                              |
| Redox (ORP mV)                | 100.1                                                                            |
| parameters                    | @09:30, DTW:60.85, pH:7.39, temp:5.8, cond:0.84, turb:28.9, DO:1.63, redox:100.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:35, DTW:60.85, pH:7.39, temp:5.7, cond:0.86, turb:19.5, DO:1.63, redox:95.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 60.85                                                                           |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 7.39                                                                            |
| Conductivity (mS/cm)             | 0.86                                                                            |
| Turbidity (NTU)                  | 19.5                                                                            |
| Dissolved Oxygen (mg/L)          | 1.63                                                                            |
| Temperature (Degrees Celsius)    | 5.7                                                                             |
| Redox (ORP mV)                   | 95.4                                                                            |
| parameters                       | @09:35, DTW:60.85, pH:7.39, temp:5.7, cond:0.86, turb:19.5, DO:1.63, redox:95.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:40, DTW:60.85, pH:7.38, temp:6, cond:0.86, turb:15.9, DO:1.67, redox:90.1**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 60.85                                                                         |
| Milliliters Purged (total)       | 3000                                                                          |
| pH                               | 7.38                                                                          |
| Conductivity (mS/cm)             | 0.86                                                                          |
| Turbidity (NTU)                  | 15.9                                                                          |
| Dissolved Oxygen (mg/L)          | 1.67                                                                          |
| Temperature (Degrees Celsius)    | 6                                                                             |
| Redox (ORP mV)                   | 90.1                                                                          |
| parameters                       | @09:40, DTW:60.85, pH:7.38, temp:6, cond:0.86, turb:15.9, DO:1.67, redox:90.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:45, DTW:60.85, pH:7.37, temp:6.1, cond:0.87, turb:13.2, DO:1.61, redox:87.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 60.85                                                                           |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 7.37                                                                            |
| Conductivity (mS/cm)             | 0.87                                                                            |
| Turbidity (NTU)                  | 13.2                                                                            |
| Dissolved Oxygen (mg/L)          | 1.61                                                                            |
| Temperature (Degrees Celsius)    | 6.1                                                                             |
| Redox (ORP mV)                   | 87.2                                                                            |
| parameters                       | @09:45, DTW:60.85, pH:7.37, temp:6.1, cond:0.87, turb:13.2, DO:1.61, redox:87.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:50, DTW:60.85, pH:7.36, temp:6, cond:0.88, turb:11.4, DO:1.58, redox:81.2**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 09:50                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 60.85                                                                         |
| Milliliters Purged (total)       | 4000                                                                          |
| pH                               | 7.36                                                                          |
| Conductivity (mS/cm)             | 0.88                                                                          |
| Turbidity (NTU)                  | 11.4                                                                          |
| Dissolved Oxygen (mg/L)          | 1.58                                                                          |
| Temperature (Degrees Celsius)    | 6                                                                             |
| Redox (ORP mV)                   | 81.2                                                                          |
| parameters                       | @09:50, DTW:60.85, pH:7.36, temp:6, cond:0.88, turb:11.4, DO:1.58, redox:81.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:55, DTW:60.85, pH:7.36, temp:5.9, cond:0.9, turb:9.75, DO:1.64, redox:75**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 60.85 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.36  |
| Conductivity (mS/cm)             | 0.9   |
| Turbidity (NTU)                  | 9.75  |

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 1.64                                                                         |
| Temperature (Degrees Celsius) | 5.9                                                                          |
| Redox (ORP mV)                | 75                                                                           |
| parameters                    | @09:55, DTW:60.85, pH:7.36, temp:5.9, cond:0.9, turb:9.75, DO:1.64, redox:75 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:00, DTW:60.85, pH:7.35, temp:6.1, cond:0.91, turb:9.12, DO:1.65, redox:69.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 60.85                                                                           |
| Milliliters Purged (total)       | 5000                                                                            |
| pH                               | 7.35                                                                            |
| Conductivity (mS/cm)             | 0.91                                                                            |
| Turbidity (NTU)                  | 9.12                                                                            |
| Dissolved Oxygen (mg/L)          | 1.65                                                                            |
| Temperature (Degrees Celsius)    | 6.1                                                                             |
| Redox (ORP mV)                   | 69.8                                                                            |
| parameters                       | @10:00, DTW:60.85, pH:7.35, temp:6.1, cond:0.91, turb:9.12, DO:1.65, redox:69.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:05, DTW:60.85, pH:7.34, temp:5.8, cond:0.92, turb:9.45, DO:1.61, redox:65.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:05                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 60.85                                                                           |
| Milliliters Purged (total)       | 5500                                                                            |
| pH                               | 7.34                                                                            |
| Conductivity (mS/cm)             | 0.92                                                                            |
| Turbidity (NTU)                  | 9.45                                                                            |
| Dissolved Oxygen (mg/L)          | 1.61                                                                            |
| Temperature (Degrees Celsius)    | 5.8                                                                             |
| Redox (ORP mV)                   | 65.7                                                                            |
| parameters                       | @10:05, DTW:60.85, pH:7.34, temp:5.8, cond:0.92, turb:9.45, DO:1.61, redox:65.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 10:05       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 5500        |
| Well Volumes Purged           | 0.29        |

## **Sample Information**

|               |       |
|---------------|-------|
| Sample Time   | 10:05 |
| Color         | Clear |
| Notable odors | No    |

#### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

#### Well Information

|                          |                 |
|--------------------------|-----------------|
| Well Location            | On site Plant 3 |
| Condition of Well        | Good            |
| Well Locked at Arrival   | No              |
| Well Locked at Departure | Yes             |
| Comments                 | Installed lock  |

Signature

A handwritten signature in black ink, appearing to be 'ZyL' followed by a horizontal line.

Signed 2019-03-06 14:38:57 UTC

## 2019-06-11, MW-18-97, MW-18-97

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-11 11:47:15 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-11 12:10:12 EDT by Christine Gregg |
| Location                                                                                          | 42.74678404, -84.58465152                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-11                                 |
| Well Identification                                                                               | MW-18-97                                   |
| Well ID                                                                                           | MW-18-97                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | Dup-10                                     |
| Weather                                                                                           | Sunny, 75F                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 61.68         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 91.63         |
| Water Column                                                                                                                                                                                                                                           | 29.95         |
| Gallons in Well                                                                                                                                                                                                                                        | 4.87          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Bladder       |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 89.13         |
| Purge Start                                                                                                                                                                                                                                            | 11:45         |

### @11:50, DTW:61.73, pH:6.86, temp:14.3, cond:1.54, turb:8.4, DO:0.4, redox:-78.1

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 11:50                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 61.73                                                                           |
| Milliliters Purged (total)    | 1000                                                                            |
| pH                            | 6.86                                                                            |
| Conductivity (mS/cm)          | 1.54                                                                            |
| Turbidity (NTU)               | 8.4                                                                             |
| Dissolved Oxygen (mg/L)       | 0.4                                                                             |
| Temperature (Degrees Celsius) | 14.3                                                                            |
| Redox (ORP mV)                | -78.1                                                                           |
| parameters                    | @11:50, DTW:61.73, pH:6.86, temp:14.3, cond:1.54, turb:8.4, DO:0.4, redox:-78.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:55, DTW:61.73, pH:6.86, temp:14.2, cond:1.53, turb:4.88, DO:0.31, redox:-81.7**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:55                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 61.73                                                                             |
| Milliliters Purged (total)       | 2000                                                                              |
| pH                               | 6.86                                                                              |
| Conductivity (mS/cm)             | 1.53                                                                              |
| Turbidity (NTU)                  | 4.88                                                                              |
| Dissolved Oxygen (mg/L)          | 0.31                                                                              |
| Temperature (Degrees Celsius)    | 14.2                                                                              |
| Redox (ORP mV)                   | -81.7                                                                             |
| parameters                       | @11:55, DTW:61.73, pH:6.86, temp:14.2, cond:1.53, turb:4.88, DO:0.31, redox:-81.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:00, DTW:61.73, pH:6.85, temp:14.3, cond:1.54, turb:3.84, DO:0.25, redox:-85.8**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:00                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 61.73                                                                             |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 6.85                                                                              |
| Conductivity (mS/cm)             | 1.54                                                                              |
| Turbidity (NTU)                  | 3.84                                                                              |
| Dissolved Oxygen (mg/L)          | 0.25                                                                              |
| Temperature (Degrees Celsius)    | 14.3                                                                              |
| Redox (ORP mV)                   | -85.8                                                                             |
| parameters                       | @12:00, DTW:61.73, pH:6.85, temp:14.3, cond:1.54, turb:3.84, DO:0.25, redox:-85.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:05, DTW:61.73, pH:6.85, temp:14.2, cond:1.54, turb:3.11, DO:0.24, redox:-86.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 61.73 |
| Milliliters Purged (total)       | 4000  |
| pH                               | 6.85  |
| Conductivity (mS/cm)             | 1.54  |
| Turbidity (NTU)                  | 3.11  |
| Dissolved Oxygen (mg/L)          | 0.24  |
| Temperature (Degrees Celsius)    | 14.2  |
| Redox (ORP mV)                   | -86.3 |



parameters

@12:05, DTW:61.73, pH:6.85, temp:14.2, cond:1.54, turb:3.11, DO:0.24, redox:-86.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:10, DTW:61.73, pH:6.85, temp:14.2, cond:1.54, turb:2.66, DO:0.24, redox:-86.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 61.73 |
| Milliliters Purged (total)       | 5000  |
| pH                               | 6.85  |
| Conductivity (mS/cm)             | 1.54  |
| Turbidity (NTU)                  | 2.66  |
| Dissolved Oxygen (mg/L)          | 0.24  |
| Temperature (Degrees Celsius)    | 14.2  |
| Redox (ORP mV)                   | -86.6 |

parameters

@12:10, DTW:61.73, pH:6.85, temp:14.2, cond:1.54, turb:2.66, DO:0.24, redox:-86.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 12:25 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:15 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to read "And Wd", written in a cursive style.

Signed 2019-06-11 15:48:44 UTC

---

## 2019-12-06, MW-18-97

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-06 15:49:25 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-06 16:35:17 UTC by Austin Westhuis |
| Location                                                                                          | 42.746796235482, -84.5846512635095         |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-06                                 |
| Well ID                                                                                           | MW-18-97                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | Dup-05                                     |
| Weather                                                                                           | Cloudy, 35F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 60.57         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 92.7          |
| Water Column                                                                                                                                                                                                                                              | 32.13         |
| Gallons in Well                                                                                                                                                                                                                                           | 5.22          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 90.2          |
| Purge Start                                                                                                                                                                                                                                               | 11:05         |

### @11:10, DTW:60.57, pH:7.19, temp:10.6, cond:1.17, turb:58.9, DO:5.3, redox:-75

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 11:10                                                                          |
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 60.57                                                                          |
| Milliliters Purged (total)    | 1000                                                                           |
| pH                            | 7.19                                                                           |
| Conductivity (mS/cm)          | 1.17                                                                           |
| Turbidity (NTU)               | 58.9                                                                           |
| Dissolved Oxygen (mg/L)       | 5.3                                                                            |
| Temperature (Degrees Celsius) | 10.6                                                                           |
| Redox (ORP mV)                | -75                                                                            |
| parameters                    | @11:10, DTW:60.57, pH:7.19, temp:10.6, cond:1.17, turb:58.9, DO:5.3, redox:-75 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:15, DTW:60.57, pH:7.18, temp:10.8, cond:1.18, turb:22.9, DO:5.17, redox:-76.8

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 11:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 60.57                                                                             |
| Milliliters Purged (total)       | 2000                                                                              |
| pH                               | 7.18                                                                              |
| Conductivity (mS/cm)             | 1.18                                                                              |
| Turbidity (NTU)                  | 22.9                                                                              |
| Dissolved Oxygen (mg/L)          | 5.17                                                                              |
| Temperature (Degrees Celsius)    | 10.8                                                                              |
| Redox (ORP mV)                   | -76.8                                                                             |
| parameters                       | @11:15, DTW:60.57, pH:7.18, temp:10.8, cond:1.18, turb:22.9, DO:5.17, redox:-76.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:20, DTW:60.57, pH:7.07, temp:11.1, cond:1.23, turb:16.6, DO:5, redox:-81**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 11:20                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 60.57                                                                        |
| Milliliters Purged (total)       | 3000                                                                         |
| pH                               | 7.07                                                                         |
| Conductivity (mS/cm)             | 1.23                                                                         |
| Turbidity (NTU)                  | 16.6                                                                         |
| Dissolved Oxygen (mg/L)          | 5                                                                            |
| Temperature (Degrees Celsius)    | 11.1                                                                         |
| Redox (ORP mV)                   | -81                                                                          |
| parameters                       | @11:20, DTW:60.57, pH:7.07, temp:11.1, cond:1.23, turb:16.6, DO:5, redox:-81 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:25, DTW:60.57, pH:7.04, temp:11.1, cond:1.25, turb:13.6, DO:4.86, redox:-80**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 60.57                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.04                                                                            |
| Conductivity (mS/cm)             | 1.25                                                                            |
| Turbidity (NTU)                  | 13.6                                                                            |
| Dissolved Oxygen (mg/L)          | 4.86                                                                            |
| Temperature (Degrees Celsius)    | 11.1                                                                            |
| Redox (ORP mV)                   | -80                                                                             |
| parameters                       | @11:25, DTW:60.57, pH:7.04, temp:11.1, cond:1.25, turb:13.6, DO:4.86, redox:-80 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:30, DTW:60.57, pH:7.04, temp:11.5, cond:1.31, turb:12.1, DO:4.8, redox:-79.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 60.57                                                                            |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 7.04                                                                             |
| Conductivity (mS/cm)             | 1.31                                                                             |
| Turbidity (NTU)                  | 12.1                                                                             |
| Dissolved Oxygen (mg/L)          | 4.8                                                                              |
| Temperature (Degrees Celsius)    | 11.5                                                                             |
| Redox (ORP mV)                   | -79.2                                                                            |
| parameters                       | @11:30, DTW:60.57, pH:7.04, temp:11.5, cond:1.31, turb:12.1, DO:4.8, redox:-79.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 11:40 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:35 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to be 'A. W.' with a stylized flourish at the end.

Signed 2019-12-06 15:51:04 UTC

---

## 2019-03-05, MW-18-98, MW-18-98

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-03-05 11:57:17 EST by Billy Cobern    |
| Updated                                                                                           | 2019-03-05 12:30:07 EST by Christine Gregg |
| Location                                                                                          | 42.74687234, -84.58464473                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-03-05                                 |
| Well Identification                                                                               | MW-18-98                                   |
| Well ID                                                                                           | MW-18-98                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy Windy Snow 13 degrees               |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 7.91          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 14.9          |
| Water Column                                                                                                                                                                                                                                              | 6.99          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.14          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 12.5          |
| Purge Start                                                                                                                                                                                                                                               | 12:00         |

### @12:00, DTW:7.91, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 12:00                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 7.91                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @12:00, DTW:7.91, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:05, DTW:8.33, pH:10.56, temp:3, cond:0.476, turb:77.5, DO:1.04, redox:40.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 8.33  |
| Milliliters Purged (total)       | 500   |
| pH                               | 10.56 |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.476                                                                          |
| Turbidity (NTU)               | 77.5                                                                           |
| Dissolved Oxygen (mg/L)       | 1.04                                                                           |
| Temperature (Degrees Celsius) | 3                                                                              |
| Redox (ORP mV)                | 40.5                                                                           |
| parameters                    | @12:05, DTW:8.33, pH:10.56, temp:3, cond:0.476, turb:77.5, DO:1.04, redox:40.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:10, DTW:8.56, pH:10.59, temp:2.6, cond:0.475, turb:57.3, DO:0.98, redox:39.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 8.56                                                                             |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 10.59                                                                            |
| Conductivity (mS/cm)             | 0.475                                                                            |
| Turbidity (NTU)                  | 57.3                                                                             |
| Dissolved Oxygen (mg/L)          | 0.98                                                                             |
| Temperature (Degrees Celsius)    | 2.6                                                                              |
| Redox (ORP mV)                   | 39.3                                                                             |
| parameters                       | @12:10, DTW:8.56, pH:10.59, temp:2.6, cond:0.475, turb:57.3, DO:0.98, redox:39.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:15, DTW:8.75, pH:10.57, temp:2.6, cond:0.474, turb:37.9, DO:0.94, redox:38.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 8.75                                                                             |
| Milliliters Purged (total)       | 1500                                                                             |
| pH                               | 10.57                                                                            |
| Conductivity (mS/cm)             | 0.474                                                                            |
| Turbidity (NTU)                  | 37.9                                                                             |
| Dissolved Oxygen (mg/L)          | 0.94                                                                             |
| Temperature (Degrees Celsius)    | 2.6                                                                              |
| Redox (ORP mV)                   | 38.3                                                                             |
| parameters                       | @12:15, DTW:8.75, pH:10.57, temp:2.6, cond:0.474, turb:37.9, DO:0.94, redox:38.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:20, DTW:8.93, pH:10.55, temp:2.7, cond:0.474, turb:36.6, DO:1.02, redox:36.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:20 |
| Minutes Elapsed between readings | 5     |



|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 8.93                                                                             |
| Milliliters Purged (total)    | 2000                                                                             |
| pH                            | 10.55                                                                            |
| Conductivity (mS/cm)          | 0.474                                                                            |
| Turbidity (NTU)               | 36.6                                                                             |
| Dissolved Oxygen (mg/L)       | 1.02                                                                             |
| Temperature (Degrees Celsius) | 2.7                                                                              |
| Redox (ORP mV)                | 36.7                                                                             |
| parameters                    | @12:20, DTW:8.93, pH:10.55, temp:2.7, cond:0.474, turb:36.6, DO:1.02, redox:36.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:25, DTW:9.1, pH:10.55, temp:2.7, cond:0.473, turb:25.1, DO:1.03, redox:36.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 9.1                                                                             |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 10.55                                                                           |
| Conductivity (mS/cm)             | 0.473                                                                           |
| Turbidity (NTU)                  | 25.1                                                                            |
| Dissolved Oxygen (mg/L)          | 1.03                                                                            |
| Temperature (Degrees Celsius)    | 2.7                                                                             |
| Redox (ORP mV)                   | 36.5                                                                            |
| parameters                       | @12:25, DTW:9.1, pH:10.55, temp:2.7, cond:0.473, turb:25.1, DO:1.03, redox:36.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:30, DTW:9.25, pH:10.54, temp:2.9, cond:0.472, turb:14.9, DO:1.04, redox:36.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 9.25                                                                             |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 10.54                                                                            |
| Conductivity (mS/cm)             | 0.472                                                                            |
| Turbidity (NTU)                  | 14.9                                                                             |
| Dissolved Oxygen (mg/L)          | 1.04                                                                             |
| Temperature (Degrees Celsius)    | 2.9                                                                              |
| Redox (ORP mV)                   | 36.2                                                                             |
| parameters                       | @12:30, DTW:9.25, pH:10.54, temp:2.9, cond:0.472, turb:14.9, DO:1.04, redox:36.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:35, DTW:9.39, pH:10.53, temp:2.9, cond:0.47, turb:12.2, DO:1.04, redox:35.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 9.39                                                                            |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 10.53                                                                           |
| Conductivity (mS/cm)             | 0.47                                                                            |
| Turbidity (NTU)                  | 12.2                                                                            |
| Dissolved Oxygen (mg/L)          | 1.04                                                                            |
| Temperature (Degrees Celsius)    | 2.9                                                                             |
| Redox (ORP mV)                   | 35.9                                                                            |
| parameters                       | @12:35, DTW:9.39, pH:10.53, temp:2.9, cond:0.47, turb:12.2, DO:1.04, redox:35.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:40, DTW:9.42, pH:10.53, temp:2.8, cond:0.473, turb:9.73, DO:1.06, redox:35.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 9.42                                                                             |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 10.53                                                                            |
| Conductivity (mS/cm)             | 0.473                                                                            |
| Turbidity (NTU)                  | 9.73                                                                             |
| Dissolved Oxygen (mg/L)          | 1.06                                                                             |
| Temperature (Degrees Celsius)    | 2.8                                                                              |
| Redox (ORP mV)                   | 35.4                                                                             |
| parameters                       | @12:40, DTW:9.42, pH:10.53, temp:2.8, cond:0.473, turb:9.73, DO:1.06, redox:35.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:45, DTW:9.53, pH:10.52, temp:2.8, cond:0.474, turb:9.12, DO:1.06, redox:35**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 9.53  |
| Milliliters Purged (total)       | 4500  |
| pH                               | 10.52 |
| Conductivity (mS/cm)             | 0.474 |
| Turbidity (NTU)                  | 9.12  |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 1.06                                                                           |
| Temperature (Degrees Celsius) | 2.8                                                                            |
| Redox (ORP mV)                | 35                                                                             |
| parameters                    | @12:45, DTW:9.53, pH:10.52, temp:2.8, cond:0.474, turb:9.12, DO:1.06, redox:35 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:50, DTW:9.63, pH:10.5, temp:2.7, cond:0.475, turb:9.53, DO:1.05, redox:34.6

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:50                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 9.63                                                                            |
| Milliliters Purged (total)       | 5000                                                                            |
| pH                               | 10.5                                                                            |
| Conductivity (mS/cm)             | 0.475                                                                           |
| Turbidity (NTU)                  | 9.53                                                                            |
| Dissolved Oxygen (mg/L)          | 1.05                                                                            |
| Temperature (Degrees Celsius)    | 2.7                                                                             |
| Redox (ORP mV)                   | 34.6                                                                            |
| parameters                       | @12:50, DTW:9.63, pH:10.5, temp:2.7, cond:0.475, turb:9.53, DO:1.05, redox:34.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 12:50       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 5000        |
| Well Volumes Purged           | 1.16        |

### Sample Information

|               |              |
|---------------|--------------|
| Sample Time   | 12:50        |
| Color         | Tan to clear |
| Notable odors | No           |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |                                                   |
|--------------------------|---------------------------------------------------|
| Well Location            | On site Plant 3                                   |
| Condition of Well        | Good                                              |
| Well Locked at Arrival   | No                                                |
| Well Locked at Departure | Yes                                               |
| Comments                 | Installed lock, didn't meet drawdown requirements |

Signature

A handwritten signature in black ink, appearing to be 'Zeyl' followed by a stylized flourish.

Signed 2019-03-05 16:59:48 UTC

---

## 2019-06-04, MW-18-98, MW-18-98

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-04 14:10:54 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-04 16:18:55 EDT by Christine Gregg |
| Location                                                                                          | 42.74681241, -84.58465973                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-04                                 |
| Well Identification                                                                               | MW-18-98                                   |
| Well ID                                                                                           | MW-18-98                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Cloudy, 70F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 6.15          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 14.97         |
| Water Column                                                                                                                                                                                                                                               | 8.82          |
| Gallons in Well                                                                                                                                                                                                                                            | 1.43          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                   | 12.47         |
| Purge Start                                                                                                                                                                                                                                                | 14:25         |

### @14:30, DTW:8.39, pH:8.33, temp:14, cond:0.85, turb:26.7, DO:0.2, redox:-209.2

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 14:30                                                                          |
| Rate (mL/min)                 | 100                                                                            |
| Depth to Water (ft)           | 8.39                                                                           |
| Milliliters Purged (total)    | 500                                                                            |
| pH                            | 8.33                                                                           |
| Conductivity (mS/cm)          | 0.85                                                                           |
| Turbidity (NTU)               | 26.7                                                                           |
| Dissolved Oxygen (mg/L)       | 0.2                                                                            |
| Temperature (Degrees Celsius) | 14                                                                             |
| Redox (ORP mV)                | -209.2                                                                         |
| parameters                    | @14:30, DTW:8.39, pH:8.33, temp:14, cond:0.85, turb:26.7, DO:0.2, redox:-209.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:35, DTW:9.49, pH:8.41, temp:13.8, cond:0.74, turb:12.4, DO:0.35, redox:-234.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 9.49                                                                              |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 8.41                                                                              |
| Conductivity (mS/cm)             | 0.74                                                                              |
| Turbidity (NTU)                  | 12.4                                                                              |
| Dissolved Oxygen (mg/L)          | 0.35                                                                              |
| Temperature (Degrees Celsius)    | 13.8                                                                              |
| Redox (ORP mV)                   | -234.5                                                                            |
| parameters                       | @14:35, DTW:9.49, pH:8.41, temp:13.8, cond:0.74, turb:12.4, DO:0.35, redox:-234.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:40, DTW:1010, pH:8.48, temp:13.6, cond:0.68, turb:9.34, DO:0.37, redox:-200**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 1010                                                                            |
| Milliliters Purged (total)       | 1500                                                                            |
| pH                               | 8.48                                                                            |
| Conductivity (mS/cm)             | 0.68                                                                            |
| Turbidity (NTU)                  | 9.34                                                                            |
| Dissolved Oxygen (mg/L)          | 0.37                                                                            |
| Temperature (Degrees Celsius)    | 13.6                                                                            |
| Redox (ORP mV)                   | -200                                                                            |
| parameters                       | @14:40, DTW:1010, pH:8.48, temp:13.6, cond:0.68, turb:9.34, DO:0.37, redox:-200 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:45, DTW:10.24, pH:8.41, temp:13.6, cond:0.65, turb:5.83, DO:0.56, redox:-168.3**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 14:45  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 100    |
| Depth to Water (ft)              | 10.24  |
| Milliliters Purged (total)       | 2000   |
| pH                               | 8.41   |
| Conductivity (mS/cm)             | 0.65   |
| Turbidity (NTU)                  | 5.83   |
| Dissolved Oxygen (mg/L)          | 0.56   |
| Temperature (Degrees Celsius)    | 13.6   |
| Redox (ORP mV)                   | -168.3 |

parameters

@14:45, DTW:10.24, pH:8.41, temp:13.6, cond:0.65, turb:5.83, DO:0.56, redox:-168.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:50, DTW:10.24, pH:8.48, temp:13.4, cond:0.62, turb:3.16, DO:0.54, redox:-161.9**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 14:50  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 100    |
| Depth to Water (ft)              | 10.24  |
| Milliliters Purged (total)       | 2500   |
| pH                               | 8.48   |
| Conductivity (mS/cm)             | 0.62   |
| Turbidity (NTU)                  | 3.16   |
| Dissolved Oxygen (mg/L)          | 0.54   |
| Temperature (Degrees Celsius)    | 13.4   |
| Redox (ORP mV)                   | -161.9 |

parameters

@14:50, DTW:10.24, pH:8.48, temp:13.4, cond:0.62, turb:3.16, DO:0.54, redox:-161.9

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:55, DTW:10.24, pH:8.48, temp:13.5, cond:0.61, turb:2.68, DO:0.5, redox:-162.8**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 14:55  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 100    |
| Depth to Water (ft)              | 10.24  |
| Milliliters Purged (total)       | 3000   |
| pH                               | 8.48   |
| Conductivity (mS/cm)             | 0.61   |
| Turbidity (NTU)                  | 2.68   |
| Dissolved Oxygen (mg/L)          | 0.5    |
| Temperature (Degrees Celsius)    | 13.5   |
| Redox (ORP mV)                   | -162.8 |

parameters

@14:55, DTW:10.24, pH:8.48, temp:13.5, cond:0.61, turb:2.68, DO:0.5, redox:-162.8

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 15:10 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:00 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                      |                |
|----------------------|----------------|
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

**Well Information**

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |
| Signature                |      |

A handwritten signature in black ink, appearing to read 'And 2/11'.

Signed 2019-06-04 18:24:29 UTC



## 2019-08-28, MW-18-98

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 17:11:38 UTC by Gary Schafer |
| Updated                                                                                           | 2020-03-31 18:41:34 UTC by Gary Schafer |
| Location                                                                                          | 42.5032092444995, -83.4427181259575     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-08-28                              |
| Well ID                                                                                           | MW-18-98                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Sunny breezy temp 72                    |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 10            |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 14.95         |
| Water Column                                                                                                                                                                                                                                                 | 4.95          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                  | 09:40         |

### @09:50, DTW:10.62, pH:7.31, temp:19.1, cond:0.89, turb:8.04, DO:0.37, redox:-45.9

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 09:50                                                                             |
| Rate (mL/min)                 | 100                                                                               |
| Depth to Water (ft)           | 10.62                                                                             |
| pH                            | 7.31                                                                              |
| Conductivity (mS/cm)          | 0.89                                                                              |
| Turbidity (NTU)               | 8.04                                                                              |
| Dissolved Oxygen (mg/L)       | 0.37                                                                              |
| Temperature (Degrees Celsius) | 19.1                                                                              |
| Redox (ORP mV)                | -45.9                                                                             |
| parameters                    | @09:50, DTW:10.62, pH:7.31, temp:19.1, cond:0.89, turb:8.04, DO:0.37, redox:-45.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:55, DTW:10.83, pH:7.13, temp:19.9, cond:0.79, turb:6.44, DO:0.14, redox:-81.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 10.83 |
| pH                               | 7.13  |
| Conductivity (mS/cm)             | 0.79  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Turbidity (NTU)               | 6.44                                                                              |
| Dissolved Oxygen (mg/L)       | 0.14                                                                              |
| Temperature (Degrees Celsius) | 19.9                                                                              |
| Redox (ORP mV)                | -81.7                                                                             |
| parameters                    | @09:55, DTW:10.83, pH:7.13, temp:19.9, cond:0.79, turb:6.44, DO:0.14, redox:-81.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:00, DTW:11.63, pH:7.13, temp:19.4, cond:0.74, turb:5.43, DO:0.1, redox:-135.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:00                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 11.63                                                                             |
| pH                               | 7.13                                                                              |
| Conductivity (mS/cm)             | 0.74                                                                              |
| Turbidity (NTU)                  | 5.43                                                                              |
| Dissolved Oxygen (mg/L)          | 0.1                                                                               |
| Temperature (Degrees Celsius)    | 19.4                                                                              |
| Redox (ORP mV)                   | -135.4                                                                            |
| parameters                       | @10:00, DTW:11.63, pH:7.13, temp:19.4, cond:0.74, turb:5.43, DO:0.1, redox:-135.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:05, DTW:12.03, pH:7.78, temp:19.4, cond:0.72, turb:10.5, DO:0.09, redox:-133.8**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 10:05                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 12.03                                                                              |
| pH                               | 7.78                                                                               |
| Conductivity (mS/cm)             | 0.72                                                                               |
| Turbidity (NTU)                  | 10.5                                                                               |
| Dissolved Oxygen (mg/L)          | 0.09                                                                               |
| Temperature (Degrees Celsius)    | 19.4                                                                               |
| Redox (ORP mV)                   | -133.8                                                                             |
| parameters                       | @10:05, DTW:12.03, pH:7.78, temp:19.4, cond:0.72, turb:10.5, DO:0.09, redox:-133.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:10, DTW:12.6, pH:7.78, temp:19.6, cond:0.71, turb:11.4, DO:0.12, redox:-130.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 12.6  |
| pH                               | 7.78  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 0.71                                                                              |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 11.4                                                                              |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.12                                                                              |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 19.6                                                                              |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -130.8                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @10:10, DTW:12.6, pH:7.78, temp:19.6, cond:0.71, turb:11.4, DO:0.12, redox:-130.8 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                   |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 10:14                                                                             |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Gallons                                                                           |
| Total Gallons Purged                                                                                                                                                                                                                                                                                                                             | 1.5                                                                               |

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 10:11 |
|-------------|-------|

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW 18-98 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |
| Signature                |          |



Signed 2020-03-31 18:41:33 UTC

## 2019-12-04, MW-18-98

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-04 17:24:55 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-04 18:04:33 UTC by Austin Westhuis |
| Location                                                                                          | 42.74560701106, -84.5838666335536          |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-04                                 |
| Well ID                                                                                           | MW-18-98                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | Dup-02                                     |
| Weather                                                                                           | Cloudy, 35F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 5.46          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 14.9          |
| Water Column                                                                                                                                                                                                                                              | 9.44          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.53          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 12.4          |
| Purge Start                                                                                                                                                                                                                                               | 12:35         |

### @12:40, DTW:6.62, pH:7.45, temp:10.4, cond:0.54, turb:18.3, DO:0.33, redox:-84

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 12:40                                                                          |
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 6.62                                                                           |
| Milliliters Purged (total)    | 1000                                                                           |
| pH                            | 7.45                                                                           |
| Conductivity (mS/cm)          | 0.54                                                                           |
| Turbidity (NTU)               | 18.3                                                                           |
| Dissolved Oxygen (mg/L)       | 0.33                                                                           |
| Temperature (Degrees Celsius) | 10.4                                                                           |
| Redox (ORP mV)                | -84                                                                            |
| parameters                    | @12:40, DTW:6.62, pH:7.45, temp:10.4, cond:0.54, turb:18.3, DO:0.33, redox:-84 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:45, DTW:6.92, pH:7.28, temp:9.6, cond:0.52, turb:12.6, DO:0.2, redox:-72.1

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:45                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 6.92                                                                           |
| Milliliters Purged (total)       | 2000                                                                           |
| pH                               | 7.28                                                                           |
| Conductivity (mS/cm)             | 0.52                                                                           |
| Turbidity (NTU)                  | 12.6                                                                           |
| Dissolved Oxygen (mg/L)          | 0.2                                                                            |
| Temperature (Degrees Celsius)    | 9.6                                                                            |
| Redox (ORP mV)                   | -72.1                                                                          |
| parameters                       | @12:45, DTW:6.92, pH:7.28, temp:9.6, cond:0.52, turb:12.6, DO:0.2, redox:-72.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:50, DTW:7.27, pH:7.31, temp:9.6, cond:0.51, turb:6.52, DO:0.21, redox:-73.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:50                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 7.27                                                                            |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.31                                                                            |
| Conductivity (mS/cm)             | 0.51                                                                            |
| Turbidity (NTU)                  | 6.52                                                                            |
| Dissolved Oxygen (mg/L)          | 0.21                                                                            |
| Temperature (Degrees Celsius)    | 9.6                                                                             |
| Redox (ORP mV)                   | -73.3                                                                           |
| parameters                       | @12:50, DTW:7.27, pH:7.31, temp:9.6, cond:0.51, turb:6.52, DO:0.21, redox:-73.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:55, DTW:7.35, pH:7.28, temp:9.6, cond:0.52, turb:3.83, DO:0.18, redox:-72**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 12:55                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 7.35                                                                          |
| Milliliters Purged (total)       | 4000                                                                          |
| pH                               | 7.28                                                                          |
| Conductivity (mS/cm)             | 0.52                                                                          |
| Turbidity (NTU)                  | 3.83                                                                          |
| Dissolved Oxygen (mg/L)          | 0.18                                                                          |
| Temperature (Degrees Celsius)    | 9.6                                                                           |
| Redox (ORP mV)                   | -72                                                                           |
| parameters                       | @12:55, DTW:7.35, pH:7.28, temp:9.6, cond:0.52, turb:3.83, DO:0.18, redox:-72 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:00, DTW:7.39, pH:7.29, temp:9.7, cond:0.51, turb:2.08, DO:0.19, redox:-73.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 7.39                                                                            |
| Milliliters Purged (total)       | 5000                                                                            |
| pH                               | 7.29                                                                            |
| Conductivity (mS/cm)             | 0.51                                                                            |
| Turbidity (NTU)                  | 2.08                                                                            |
| Dissolved Oxygen (mg/L)          | 0.19                                                                            |
| Temperature (Degrees Celsius)    | 9.7                                                                             |
| Redox (ORP mV)                   | -73.1                                                                           |
| parameters                       | @13:00, DTW:7.39, pH:7.29, temp:9.7, cond:0.51, turb:2.08, DO:0.19, redox:-73.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 13:10 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:05 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to be 'André' followed by a stylized flourish.

Signed 2019-12-04 17:26:51 UTC

---

## 2019-03-05, MW-18-99, MW-18-99

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-03-05 10:49:57 EST by Billy Cobern    |
| Updated                                                                                           | 2019-03-05 11:09:55 EST by Christine Gregg |
| Location                                                                                          | 42.74612979, -84.58592791                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-03-05                                 |
| Well Identification                                                                               | MW-18-99                                   |
| Well ID                                                                                           | MW-18-99                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy Windy Snow 10 degrees               |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 6.69          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 16.9          |
| Water Column                                                                                                                                                                                                                                              | 10.21         |
| Gallons in Well                                                                                                                                                                                                                                           | 1.66          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 14.5          |
| Purge Start                                                                                                                                                                                                                                               | 10:50         |

### @10:50, DTW:6.69, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 10:50                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 6.69                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @10:50, DTW:6.69, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:55, DTW:7.03, pH:9.12, temp:2.7, cond:1.6, turb:24.1, DO:0.43, redox:75.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 7.03  |
| Milliliters Purged (total)       | 500   |
| pH                               | 9.12  |



|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.6                                                                           |
| Turbidity (NTU)               | 24.1                                                                          |
| Dissolved Oxygen (mg/L)       | 0.43                                                                          |
| Temperature (Degrees Celsius) | 2.7                                                                           |
| Redox (ORP mV)                | 75.5                                                                          |
| parameters                    | @10:55, DTW:7.03, pH:9.12, temp:2.7, cond:1.6, turb:24.1, DO:0.43, redox:75.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:00, DTW:7.35, pH:9.13, temp:2.8, cond:1.59, turb:21.7, DO:0.39, redox:74.5**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:00                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 7.35                                                                           |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 9.13                                                                           |
| Conductivity (mS/cm)             | 1.59                                                                           |
| Turbidity (NTU)                  | 21.7                                                                           |
| Dissolved Oxygen (mg/L)          | 0.39                                                                           |
| Temperature (Degrees Celsius)    | 2.8                                                                            |
| Redox (ORP mV)                   | 74.5                                                                           |
| parameters                       | @11:00, DTW:7.35, pH:9.13, temp:2.8, cond:1.59, turb:21.7, DO:0.39, redox:74.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:05, DTW:7.61, pH:9.14, temp:1.8, cond:1.61, turb:15.9, DO:0.36, redox:72.7**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:05                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 7.61                                                                           |
| Milliliters Purged (total)       | 1500                                                                           |
| pH                               | 9.14                                                                           |
| Conductivity (mS/cm)             | 1.61                                                                           |
| Turbidity (NTU)                  | 15.9                                                                           |
| Dissolved Oxygen (mg/L)          | 0.36                                                                           |
| Temperature (Degrees Celsius)    | 1.8                                                                            |
| Redox (ORP mV)                   | 72.7                                                                           |
| parameters                       | @11:05, DTW:7.61, pH:9.14, temp:1.8, cond:1.61, turb:15.9, DO:0.36, redox:72.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:10, DTW:7.89, pH:9.1, temp:2, cond:1.6, turb:13.7, DO:0.36, redox:71.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:10 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                            |
|-------------------------------|----------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                        |
| Depth to Water (ft)           | 7.89                                                                       |
| Milliliters Purged (total)    | 2000                                                                       |
| pH                            | 9.1                                                                        |
| Conductivity (mS/cm)          | 1.6                                                                        |
| Turbidity (NTU)               | 13.7                                                                       |
| Dissolved Oxygen (mg/L)       | 0.36                                                                       |
| Temperature (Degrees Celsius) | 2                                                                          |
| Redox (ORP mV)                | 71.9                                                                       |
| parameters                    | @11:10, DTW:7.89, pH:9.1, temp:2, cond:1.6, turb:13.7, DO:0.36, redox:71.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:15, DTW:8.05, pH:9.11, temp:2.1, cond:1.6, turb:10.1, DO:0.36, redox:71**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 11:15                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 100                                                                         |
| Depth to Water (ft)              | 8.05                                                                        |
| Milliliters Purged (total)       | 2500                                                                        |
| pH                               | 9.11                                                                        |
| Conductivity (mS/cm)             | 1.6                                                                         |
| Turbidity (NTU)                  | 10.1                                                                        |
| Dissolved Oxygen (mg/L)          | 0.36                                                                        |
| Temperature (Degrees Celsius)    | 2.1                                                                         |
| Redox (ORP mV)                   | 71                                                                          |
| parameters                       | @11:15, DTW:8.05, pH:9.11, temp:2.1, cond:1.6, turb:10.1, DO:0.36, redox:71 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:20, DTW:8.22, pH:9.11, temp:2.3, cond:1.59, turb:9.64, DO:0.36, redox:70.3**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:20                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 8.22                                                                           |
| Milliliters Purged (total)       | 3000                                                                           |
| pH                               | 9.11                                                                           |
| Conductivity (mS/cm)             | 1.59                                                                           |
| Turbidity (NTU)                  | 9.64                                                                           |
| Dissolved Oxygen (mg/L)          | 0.36                                                                           |
| Temperature (Degrees Celsius)    | 2.3                                                                            |
| Redox (ORP mV)                   | 70.3                                                                           |
| parameters                       | @11:20, DTW:8.22, pH:9.11, temp:2.3, cond:1.59, turb:9.64, DO:0.36, redox:70.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:25, DTW:8.4, pH:9.12, temp:2.3, cond:1.59, turb:9.12, DO:0.35, redox:69.5**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 8.4                                                                           |
| Milliliters Purged (total)       | 3500                                                                          |
| pH                               | 9.12                                                                          |
| Conductivity (mS/cm)             | 1.59                                                                          |
| Turbidity (NTU)                  | 9.12                                                                          |
| Dissolved Oxygen (mg/L)          | 0.35                                                                          |
| Temperature (Degrees Celsius)    | 2.3                                                                           |
| Redox (ORP mV)                   | 69.5                                                                          |
| parameters                       | @11:25, DTW:8.4, pH:9.12, temp:2.3, cond:1.59, turb:9.12, DO:0.35, redox:69.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:30, DTW:8.57, pH:9.13, temp:2.3, cond:1.6, turb:8.69, DO:0.33, redox:68.8**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 11:30                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 8.57                                                                          |
| Milliliters Purged (total)       | 4000                                                                          |
| pH                               | 9.13                                                                          |
| Conductivity (mS/cm)             | 1.6                                                                           |
| Turbidity (NTU)                  | 8.69                                                                          |
| Dissolved Oxygen (mg/L)          | 0.33                                                                          |
| Temperature (Degrees Celsius)    | 2.3                                                                           |
| Redox (ORP mV)                   | 68.8                                                                          |
| parameters                       | @11:30, DTW:8.57, pH:9.13, temp:2.3, cond:1.6, turb:8.69, DO:0.33, redox:68.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 11:30       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 4000        |
| Well Volumes Purged           | 0.64        |

## Sample Information

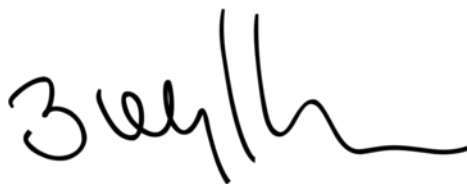
|               |       |
|---------------|-------|
| Sample Time   | 11:30 |
| Color         | Clear |
| Notable odors | No    |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |                                                   |
|--------------------------|---------------------------------------------------|
| Well Location            | On site Plant 3                                   |
| Condition of Well        | Good                                              |
| Well Locked at Arrival   | No                                                |
| Well Locked at Departure | Yes                                               |
| Comments                 | Installed lock, didn't meet drawdown requirements |
| Signature                |                                                   |

A handwritten signature in black ink, appearing to read 'Zey/h'.

Signed 2019-03-05 15:52:19 UTC

## 2019-06-05, MW-18-99, MW-18-99

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 10:29:22 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-05 10:47:46 EDT by Christine Gregg |
| Location                                                                                          | 42.74621382, -84.58589707                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-05                                 |
| Well Identification                                                                               | MW-18-99                                   |
| Well ID                                                                                           | MW-18-99                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Cloudy, 70F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 5.72          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 16.93         |
| Water Column                                                                                                                                                                                                                                               | 11.21         |
| Gallons in Well                                                                                                                                                                                                                                            | 1.82          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                   | 14.43         |
| Purge Start                                                                                                                                                                                                                                                | 10:30         |

### @10:35, DTW:8.04, pH:8.4, temp:13.7, cond:2.42, turb:14.6, DO:0.08, redox:142.2

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 10:35                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 8.04                                                                            |
| Milliliters Purged (total)    | 1000                                                                            |
| pH                            | 8.4                                                                             |
| Conductivity (mS/cm)          | 2.42                                                                            |
| Turbidity (NTU)               | 14.6                                                                            |
| Dissolved Oxygen (mg/L)       | 0.08                                                                            |
| Temperature (Degrees Celsius) | 13.7                                                                            |
| Redox (ORP mV)                | 142.2                                                                           |
| parameters                    | @10:35, DTW:8.04, pH:8.4, temp:13.7, cond:2.42, turb:14.6, DO:0.08, redox:142.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:40, DTW:8.65, pH:8.39, temp:13.7, cond:2.42, turb:9.47, DO:0.08, redox:556.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 8.65                                                                             |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 8.39                                                                             |
| Conductivity (mS/cm)             | 2.42                                                                             |
| Turbidity (NTU)                  | 9.47                                                                             |
| Dissolved Oxygen (mg/L)          | 0.08                                                                             |
| Temperature (Degrees Celsius)    | 13.7                                                                             |
| Redox (ORP mV)                   | 556.8                                                                            |
| parameters                       | @10:40, DTW:8.65, pH:8.39, temp:13.7, cond:2.42, turb:9.47, DO:0.08, redox:556.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:45, DTW:8.67, pH:8.38, temp:13.7, cond:2.41, turb:4.62, DO:0.07, redox:141.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 8.67                                                                             |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 8.38                                                                             |
| Conductivity (mS/cm)             | 2.41                                                                             |
| Turbidity (NTU)                  | 4.62                                                                             |
| Dissolved Oxygen (mg/L)          | 0.07                                                                             |
| Temperature (Degrees Celsius)    | 13.7                                                                             |
| Redox (ORP mV)                   | 141.8                                                                            |
| parameters                       | @10:45, DTW:8.67, pH:8.38, temp:13.7, cond:2.41, turb:4.62, DO:0.07, redox:141.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 10:55 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:50 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |
| Signature                |      |

A handwritten signature in black ink, appearing to read 'And Wd', is centered on the page.

Signed 2019-06-05 14:30:44 UTC

## 2019-08-28, MW-18-99

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 18:01:55 UTC by Gary Schafer |
| Updated                                                                                           | 2020-03-31 18:42:32 UTC by Gary Schafer |
| Location                                                                                          | 42.5032933988073, -83.4425256774607     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-08-28                              |
| Well ID                                                                                           | MW-18-99                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Sunny temp 72                           |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 7.4           |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 16.95         |
| Water Column                                                                                                                                                                                                                                               | 9.55          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                | 10:31         |

### @10:35, DTW:8.78, pH:6.94, temp:19, cond:2.69, turb:17.5, DO:0.19, redox:1.9

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Reading Time                  | 10:35                                                                        |
| Rate (mL/min)                 | 100                                                                          |
| Depth to Water (ft)           | 8.78                                                                         |
| pH                            | 6.94                                                                         |
| Conductivity (mS/cm)          | 2.69                                                                         |
| Turbidity (NTU)               | 17.5                                                                         |
| Dissolved Oxygen (mg/L)       | 0.19                                                                         |
| Temperature (Degrees Celsius) | 19                                                                           |
| Redox (ORP mV)                | 1.9                                                                          |
| parameters                    | @10:35, DTW:8.78, pH:6.94, temp:19, cond:2.69, turb:17.5, DO:0.19, redox:1.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:40, DTW:9.38, pH:6.87, temp:19.4, cond:2.69, turb:7.76, DO:0.16, redox:2.4

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 9.38  |
| pH                               | 6.87  |
| Conductivity (mS/cm)             | 2.69  |



|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Turbidity (NTU)               | 7.76                                                                           |
| Dissolved Oxygen (mg/L)       | 0.16                                                                           |
| Temperature (Degrees Celsius) | 19.4                                                                           |
| Redox (ORP mV)                | 2.4                                                                            |
| parameters                    | @10:40, DTW:9.38, pH:6.87, temp:19.4, cond:2.69, turb:7.76, DO:0.16, redox:2.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:45, DTW:10.03, pH:6.9, temp:19.4, cond:2.67, turb:3.68, DO:0.17, redox:6.4**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 10:45                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 10.03                                                                          |
| pH                               | 6.9                                                                            |
| Conductivity (mS/cm)             | 2.67                                                                           |
| Turbidity (NTU)                  | 3.68                                                                           |
| Dissolved Oxygen (mg/L)          | 0.17                                                                           |
| Temperature (Degrees Celsius)    | 19.4                                                                           |
| Redox (ORP mV)                   | 6.4                                                                            |
| parameters                       | @10:45, DTW:10.03, pH:6.9, temp:19.4, cond:2.67, turb:3.68, DO:0.17, redox:6.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:50, DTW:10.6, pH:6.79, temp:19.6, cond:2.64, turb:1.75, DO:0.21, redox:11**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 10:50                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 10.6                                                                          |
| pH                               | 6.79                                                                          |
| Conductivity (mS/cm)             | 2.64                                                                          |
| Turbidity (NTU)                  | 1.75                                                                          |
| Dissolved Oxygen (mg/L)          | 0.21                                                                          |
| Temperature (Degrees Celsius)    | 19.6                                                                          |
| Redox (ORP mV)                   | 11                                                                            |
| parameters                       | @10:50, DTW:10.6, pH:6.79, temp:19.6, cond:2.64, turb:1.75, DO:0.21, redox:11 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:55, DTW:10.98, pH:6.76, temp:19.6, cond:2.61, turb:1, DO:0.25, redox:14**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 10.98 |
| pH                               | 6.76  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 2.61                                                                        |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 1                                                                           |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.25                                                                        |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 19.6                                                                        |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 14                                                                          |
| parameters                                                                                                                                                                                                                                                                                                                                       | @10:55, DTW:10.98, pH:6.76, temp:19.6, cond:2.61, turb:1, DO:0.25, redox:14 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                             |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 11:02                                                                       |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Gallons                                                                     |
| Total Gallons Purged                                                                                                                                                                                                                                                                                                                             | 2                                                                           |

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 10:57 |
|-------------|-------|

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | MW 18-99 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |
| Signature                |          |



Signed 2020-03-31 18:42:30 UTC

## 2019-12-04, MW-18-99

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-04 15:43:15 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-04 16:02:23 UTC by Austin Westhuis |
| Location                                                                                          | 42.7461291198086, -84.585807547052         |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-04                                 |
| Well ID                                                                                           | MW-18-99                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | NA                                         |
| Weather                                                                                           | Cloudy, 35F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 5.69          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 16.85         |
| Water Column                                                                                                                                                                                                                                              | 11.16         |
| Gallons in Well                                                                                                                                                                                                                                           | 1.81          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 14.35         |
| Purge Start                                                                                                                                                                                                                                               | 10:40         |

### @10:45, DTW:7.58, pH:8, temp:12, cond:1.34, turb:12.6, DO:0.28, redox:138.4

|                               |                                                                             |
|-------------------------------|-----------------------------------------------------------------------------|
| Reading Time                  | 10:45                                                                       |
| Rate (mL/min)                 | 200                                                                         |
| Depth to Water (ft)           | 7.58                                                                        |
| Milliliters Purged (total)    | 1000                                                                        |
| pH                            | 8                                                                           |
| Conductivity (mS/cm)          | 1.34                                                                        |
| Turbidity (NTU)               | 12.6                                                                        |
| Dissolved Oxygen (mg/L)       | 0.28                                                                        |
| Temperature (Degrees Celsius) | 12                                                                          |
| Redox (ORP mV)                | 138.4                                                                       |
| parameters                    | @10:45, DTW:7.58, pH:8, temp:12, cond:1.34, turb:12.6, DO:0.28, redox:138.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:50, DTW:7.71, pH:7.92, temp:10.7, cond:1.3, turb:4.38, DO:0.17, redox:142.8

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:50                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 7.71                                                                            |
| Milliliters Purged (total)       | 2000                                                                            |
| pH                               | 7.92                                                                            |
| Conductivity (mS/cm)             | 1.3                                                                             |
| Turbidity (NTU)                  | 4.38                                                                            |
| Dissolved Oxygen (mg/L)          | 0.17                                                                            |
| Temperature (Degrees Celsius)    | 10.7                                                                            |
| Redox (ORP mV)                   | 142.8                                                                           |
| parameters                       | @10:50, DTW:7.71, pH:7.92, temp:10.7, cond:1.3, turb:4.38, DO:0.17, redox:142.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@10:55, DTW:7.73, pH:7.93, temp:10.4, cond:1.38, turb:2.3, DO:0.21, redox:142.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:55                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 7.73                                                                            |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.93                                                                            |
| Conductivity (mS/cm)             | 1.38                                                                            |
| Turbidity (NTU)                  | 2.3                                                                             |
| Dissolved Oxygen (mg/L)          | 0.21                                                                            |
| Temperature (Degrees Celsius)    | 10.4                                                                            |
| Redox (ORP mV)                   | 142.4                                                                           |
| parameters                       | @10:55, DTW:7.73, pH:7.93, temp:10.4, cond:1.38, turb:2.3, DO:0.21, redox:142.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@11:00, DTW:7.75, pH:7.95, temp:10.8, cond:1.28, turb:2.11, DO:0.22, redox:140.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 7.75                                                                             |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 7.95                                                                             |
| Conductivity (mS/cm)             | 1.28                                                                             |
| Turbidity (NTU)                  | 2.11                                                                             |
| Dissolved Oxygen (mg/L)          | 0.22                                                                             |
| Temperature (Degrees Celsius)    | 10.8                                                                             |
| Redox (ORP mV)                   | 140.5                                                                            |
| parameters                       | @11:00, DTW:7.75, pH:7.95, temp:10.8, cond:1.28, turb:2.11, DO:0.22, redox:140.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 11:10 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 11:05 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                |                |
|----------------|----------------|
| Container Type | 250 mL Plastic |
|----------------|----------------|

|                      |   |
|----------------------|---|
| Number of Containers | 2 |
|----------------------|---|

|              |      |
|--------------|------|
| Preservative | None |
|--------------|------|

### Well Information

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature

A handwritten signature in black ink, appearing to read 'A. W. J.', is centered on the page.

Signed 2019-12-04 15:44:44 UTC

## 2019-03-05, MW-18-100, MW-18-100

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-03-05 09:44:37 EST by Billy Cobern    |
| Updated                                                                                           | 2019-03-05 10:19:19 EST by Christine Gregg |
| Location                                                                                          | 42.74363819, -84.58696014                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-03-05                                 |
| Well Identification                                                                               | MW-18-100                                  |
| Well ID                                                                                           | MW-18-100                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | P Cloudy Windy Light Snow 9 degrees        |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 11.13         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 15.85         |
| Water Column                                                                                                                                                                                                                                              | 4.72          |
| Gallons in Well                                                                                                                                                                                                                                           | 0.77          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 14            |
| Purge Start                                                                                                                                                                                                                                               | 09:15         |

### @09:15, DTW:11.13, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 09:15                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 11.13                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @09:15, DTW:11.13, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:20, DTW:11.43, pH:7.56, temp:4, cond:0.482, turb:16.9, DO:1.01, redox:94.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 11.43 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.56  |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.482                                                                          |
| Turbidity (NTU)               | 16.9                                                                           |
| Dissolved Oxygen (mg/L)       | 1.01                                                                           |
| Temperature (Degrees Celsius) | 4                                                                              |
| Redox (ORP mV)                | 94.1                                                                           |
| parameters                    | @09:20, DTW:11.43, pH:7.56, temp:4, cond:0.482, turb:16.9, DO:1.01, redox:94.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:25, DTW:11.43, pH:7.75, temp:3.5, cond:0.477, turb:17, DO:0.95, redox:89.9**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 09:25                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 11.43                                                                          |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 7.75                                                                           |
| Conductivity (mS/cm)             | 0.477                                                                          |
| Turbidity (NTU)                  | 17                                                                             |
| Dissolved Oxygen (mg/L)          | 0.95                                                                           |
| Temperature (Degrees Celsius)    | 3.5                                                                            |
| Redox (ORP mV)                   | 89.9                                                                           |
| parameters                       | @09:25, DTW:11.43, pH:7.75, temp:3.5, cond:0.477, turb:17, DO:0.95, redox:89.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:30, DTW:11.43, pH:7.81, temp:3.5, cond:0.473, turb:15.3, DO:0.94, redox:88.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 11.43                                                                            |
| Milliliters Purged (total)       | 1500                                                                             |
| pH                               | 7.81                                                                             |
| Conductivity (mS/cm)             | 0.473                                                                            |
| Turbidity (NTU)                  | 15.3                                                                             |
| Dissolved Oxygen (mg/L)          | 0.94                                                                             |
| Temperature (Degrees Celsius)    | 3.5                                                                              |
| Redox (ORP mV)                   | 88.1                                                                             |
| parameters                       | @09:30, DTW:11.43, pH:7.81, temp:3.5, cond:0.473, turb:15.3, DO:0.94, redox:88.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:35, DTW:11.43, pH:7.85, temp:3.3, cond:0.471, turb:12.6, DO:0.95, redox:87**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:35 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                            |
| Depth to Water (ft)           | 11.43                                                                          |
| Milliliters Purged (total)    | 2000                                                                           |
| pH                            | 7.85                                                                           |
| Conductivity (mS/cm)          | 0.471                                                                          |
| Turbidity (NTU)               | 12.6                                                                           |
| Dissolved Oxygen (mg/L)       | 0.95                                                                           |
| Temperature (Degrees Celsius) | 3.3                                                                            |
| Redox (ORP mV)                | 87                                                                             |
| parameters                    | @09:35, DTW:11.43, pH:7.85, temp:3.3, cond:0.471, turb:12.6, DO:0.95, redox:87 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:40, DTW:11.43, pH:7.88, temp:3.2, cond:0.47, turb:9.94, DO:0.97, redox:86**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 11.43                                                                         |
| Milliliters Purged (total)       | 2500                                                                          |
| pH                               | 7.88                                                                          |
| Conductivity (mS/cm)             | 0.47                                                                          |
| Turbidity (NTU)                  | 9.94                                                                          |
| Dissolved Oxygen (mg/L)          | 0.97                                                                          |
| Temperature (Degrees Celsius)    | 3.2                                                                           |
| Redox (ORP mV)                   | 86                                                                            |
| parameters                       | @09:40, DTW:11.43, pH:7.88, temp:3.2, cond:0.47, turb:9.94, DO:0.97, redox:86 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:45, DTW:11.43, pH:7.9, temp:3.2, cond:0.468, turb:9.23, DO:0.97, redox:85.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 11.43                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.9                                                                             |
| Conductivity (mS/cm)             | 0.468                                                                           |
| Turbidity (NTU)                  | 9.23                                                                            |
| Dissolved Oxygen (mg/L)          | 0.97                                                                            |
| Temperature (Degrees Celsius)    | 3.2                                                                             |
| Redox (ORP mV)                   | 85.1                                                                            |
| parameters                       | @09:45, DTW:11.43, pH:7.9, temp:3.2, cond:0.468, turb:9.23, DO:0.97, redox:85.1 |



Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:50, DTW:11.43, pH:7.92, temp:3.2, cond:0.464, turb:10.4, DO:0.96, redox:84.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:50                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 11.43                                                                            |
| Milliliters Purged (total)       | 3500                                                                             |
| pH                               | 7.92                                                                             |
| Conductivity (mS/cm)             | 0.464                                                                            |
| Turbidity (NTU)                  | 10.4                                                                             |
| Dissolved Oxygen (mg/L)          | 0.96                                                                             |
| Temperature (Degrees Celsius)    | 3.2                                                                              |
| Redox (ORP mV)                   | 84.2                                                                             |
| parameters                       | @09:50, DTW:11.43, pH:7.92, temp:3.2, cond:0.464, turb:10.4, DO:0.96, redox:84.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:55, DTW:11.43, pH:7.94, temp:3.2, cond:0.462, turb:9.64, DO:0.95, redox:83.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 11.43                                                                            |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 7.94                                                                             |
| Conductivity (mS/cm)             | 0.462                                                                            |
| Turbidity (NTU)                  | 9.64                                                                             |
| Dissolved Oxygen (mg/L)          | 0.95                                                                             |
| Temperature (Degrees Celsius)    | 3.2                                                                              |
| Redox (ORP mV)                   | 83.5                                                                             |
| parameters                       | @09:55, DTW:11.43, pH:7.94, temp:3.2, cond:0.462, turb:9.64, DO:0.95, redox:83.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:00, DTW:11.43, pH:7.96, temp:3.1, cond:0.462, turb:9.12, DO:0.93, redox:82.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 11.43 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.96  |
| Conductivity (mS/cm)             | 0.462 |
| Turbidity (NTU)                  | 9.12  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.93                                                                             |
| Temperature (Degrees Celsius) | 3.1                                                                              |
| Redox (ORP mV)                | 82.9                                                                             |
| parameters                    | @10:00, DTW:11.43, pH:7.96, temp:3.1, cond:0.462, turb:9.12, DO:0.93, redox:82.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:05, DTW:11.43, pH:7.97, temp:2.7, cond:0.463, turb:9.11, DO:0.96, redox:82.2

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:05                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 11.43                                                                            |
| Milliliters Purged (total)       | 5000                                                                             |
| pH                               | 7.97                                                                             |
| Conductivity (mS/cm)             | 0.463                                                                            |
| Turbidity (NTU)                  | 9.11                                                                             |
| Dissolved Oxygen (mg/L)          | 0.96                                                                             |
| Temperature (Degrees Celsius)    | 2.7                                                                              |
| Redox (ORP mV)                   | 82.2                                                                             |
| parameters                       | @10:05, DTW:11.43, pH:7.97, temp:2.7, cond:0.463, turb:9.11, DO:0.96, redox:82.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 10:05       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 5000        |
| Well Volumes Purged           | 1.72        |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:05 |
| Color         | Clear |
| Notable odors | No    |

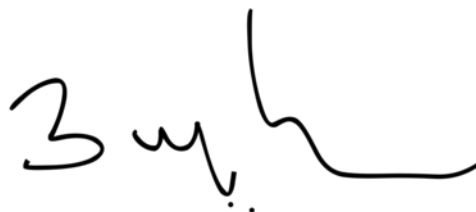
### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |                 |
|--------------------------|-----------------|
| Well Location            | On site Plant 3 |
| Condition of Well        | Good            |
| Well Locked at Arrival   | No              |
| Well Locked at Departure | Yes             |
| Comments                 | Installed lock  |

Signature

A handwritten signature in black ink, appearing to be 'Zy' followed by a stylized flourish.

Signed 2019-03-05 14:46:49 UTC

---

## 2019-06-05, MW-18-100, MW-18-100

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 14:56:26 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-05 15:29:33 EDT by Christine Gregg |
| Location                                                                                          | 42.74359301, -84.58693659                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-05                                 |
| Well Identification                                                                               | MW-18-100                                  |
| Well ID                                                                                           | MW-18-100                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Cloudy, 75F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 10.32         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 15.93         |
| Water Column                                                                                                                                                                                                                                               | 5.61          |
| Gallons in Well                                                                                                                                                                                                                                            | 0.91          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                   | 13.43         |
| Purge Start                                                                                                                                                                                                                                                | 15:00         |

### @15:05, DTW:10.59, pH:7.77, temp:13.8, cond:0.443, turb:4.72, DO:0.59, redox:206

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 15:05                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 10.59                                                                            |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 7.77                                                                             |
| Conductivity (mS/cm)          | 0.443                                                                            |
| Turbidity (NTU)               | 4.72                                                                             |
| Dissolved Oxygen (mg/L)       | 0.59                                                                             |
| Temperature (Degrees Celsius) | 13.8                                                                             |
| Redox (ORP mV)                | 206                                                                              |
| parameters                    | @15:05, DTW:10.59, pH:7.77, temp:13.8, cond:0.443, turb:4.72, DO:0.59, redox:206 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:10, DTW:10.64, pH:7.78, temp:13.8, cond:0.437, turb:3.02, DO:0.56, redox:205.1**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 15:10                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 10.64                                                                              |
| Milliliters Purged (total)       | 2000                                                                               |
| pH                               | 7.78                                                                               |
| Conductivity (mS/cm)             | 0.437                                                                              |
| Turbidity (NTU)                  | 3.02                                                                               |
| Dissolved Oxygen (mg/L)          | 0.56                                                                               |
| Temperature (Degrees Celsius)    | 13.8                                                                               |
| Redox (ORP mV)                   | 205.1                                                                              |
| parameters                       | @15:10, DTW:10.64, pH:7.78, temp:13.8, cond:0.437, turb:3.02, DO:0.56, redox:205.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:15, DTW:10.64, pH:7.83, temp:13.6, cond:0.417, turb:2.21, DO:0.52, redox:202**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 10.64                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.83                                                                             |
| Conductivity (mS/cm)             | 0.417                                                                            |
| Turbidity (NTU)                  | 2.21                                                                             |
| Dissolved Oxygen (mg/L)          | 0.52                                                                             |
| Temperature (Degrees Celsius)    | 13.6                                                                             |
| Redox (ORP mV)                   | 202                                                                              |
| parameters                       | @15:15, DTW:10.64, pH:7.83, temp:13.6, cond:0.417, turb:2.21, DO:0.52, redox:202 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:20, DTW:10.64, pH:7.85, temp:13.7, cond:0.41, turb:1.83, DO:0.5, redox:197.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 10.64 |
| Milliliters Purged (total)       | 4000  |
| pH                               | 7.85  |
| Conductivity (mS/cm)             | 0.41  |
| Turbidity (NTU)                  | 1.83  |
| Dissolved Oxygen (mg/L)          | 0.5   |
| Temperature (Degrees Celsius)    | 13.7  |
| Redox (ORP mV)                   | 197.2 |

parameters

@15:20, DTW:10.64, pH:7.85, temp:13.7, cond:0.41, turb:1.83, DO:0.5, redox:197.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 15:30 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 15:25 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                |                |
|----------------|----------------|
| Container Type | 250 mL Plastic |
|----------------|----------------|

|                      |   |
|----------------------|---|
| Number of Containers | 2 |
|----------------------|---|

|              |      |
|--------------|------|
| Preservative | None |
|--------------|------|

### Well Information

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature

A handwritten signature in black ink, appearing to read "A. L. H.", is centered on the page.

Signed 2019-06-05 19:03:52 UTC

## 2019-12-04, MW-18-100

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-04 14:25:30 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-04 15:06:40 UTC by Austin Westhuis |
| Location                                                                                          | 42.7436263673406, -84.5868979488356        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-04                                 |
| Well ID                                                                                           | MW-18-100                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | NA                                         |
| Weather                                                                                           | Cloudy, 35F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 9.78          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 15.85         |
| Water Column                                                                                                                                                                                                                                              | 6.07          |
| Gallons in Well                                                                                                                                                                                                                                           | 0.99          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 12.35         |
| Purge Start                                                                                                                                                                                                                                               | 09:35         |

### @09:40, DTW:10.21, pH:7.64, temp:11, cond:0.465, turb:54.2, DO:2.67, redox:109.1

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 09:40                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 10.21                                                                            |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 7.64                                                                             |
| Conductivity (mS/cm)          | 0.465                                                                            |
| Turbidity (NTU)               | 54.2                                                                             |
| Dissolved Oxygen (mg/L)       | 2.67                                                                             |
| Temperature (Degrees Celsius) | 11                                                                               |
| Redox (ORP mV)                | 109.1                                                                            |
| parameters                    | @09:40, DTW:10.21, pH:7.64, temp:11, cond:0.465, turb:54.2, DO:2.67, redox:109.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:45, DTW:10.51, pH:7.64, temp:11.7, cond:0.478, turb:21.2, DO:2.63, redox:103

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 10.51                                                                            |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 7.64                                                                             |
| Conductivity (mS/cm)             | 0.478                                                                            |
| Turbidity (NTU)                  | 21.2                                                                             |
| Dissolved Oxygen (mg/L)          | 2.63                                                                             |
| Temperature (Degrees Celsius)    | 11.7                                                                             |
| Redox (ORP mV)                   | 103                                                                              |
| parameters                       | @09:45, DTW:10.51, pH:7.64, temp:11.7, cond:0.478, turb:21.2, DO:2.63, redox:103 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:50, DTW:10.51, pH:7.64, temp:11.8, cond:0.48, turb:13.9, DO:2.8, redox:102.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:50                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 10.51                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.64                                                                             |
| Conductivity (mS/cm)             | 0.48                                                                             |
| Turbidity (NTU)                  | 13.9                                                                             |
| Dissolved Oxygen (mg/L)          | 2.8                                                                              |
| Temperature (Degrees Celsius)    | 11.8                                                                             |
| Redox (ORP mV)                   | 102.1                                                                            |
| parameters                       | @09:50, DTW:10.51, pH:7.64, temp:11.8, cond:0.48, turb:13.9, DO:2.8, redox:102.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:55, DTW:10.51, pH:7.63, temp:11.9, cond:0.484, turb:9.41, DO:2.85, redox:101.3**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 09:55                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 10.51                                                                              |
| Milliliters Purged (total)       | 4000                                                                               |
| pH                               | 7.63                                                                               |
| Conductivity (mS/cm)             | 0.484                                                                              |
| Turbidity (NTU)                  | 9.41                                                                               |
| Dissolved Oxygen (mg/L)          | 2.85                                                                               |
| Temperature (Degrees Celsius)    | 11.9                                                                               |
| Redox (ORP mV)                   | 101.3                                                                              |
| parameters                       | @09:55, DTW:10.51, pH:7.63, temp:11.9, cond:0.484, turb:9.41, DO:2.85, redox:101.3 |



Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:00, DTW:10.51, pH:7.64, temp:11.8, cond:0.486, turb:4.27, DO:2.81, redox:100**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 10.51                                                                            |
| Milliliters Purged (total)       | 5000                                                                             |
| pH                               | 7.64                                                                             |
| Conductivity (mS/cm)             | 0.486                                                                            |
| Turbidity (NTU)                  | 4.27                                                                             |
| Dissolved Oxygen (mg/L)          | 2.81                                                                             |
| Temperature (Degrees Celsius)    | 11.8                                                                             |
| Redox (ORP mV)                   | 100                                                                              |
| parameters                       | @10:00, DTW:10.51, pH:7.64, temp:11.8, cond:0.486, turb:4.27, DO:2.81, redox:100 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:05, DTW:10.51, pH:7.63, temp:11.8, cond:0.487, turb:2.29, DO:2.78, redox:100.1**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 10:05                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 10.51                                                                              |
| Milliliters Purged (total)       | 6000                                                                               |
| pH                               | 7.63                                                                               |
| Conductivity (mS/cm)             | 0.487                                                                              |
| Turbidity (NTU)                  | 2.29                                                                               |
| Dissolved Oxygen (mg/L)          | 2.78                                                                               |
| Temperature (Degrees Celsius)    | 11.8                                                                               |
| Redox (ORP mV)                   | 100.1                                                                              |
| parameters                       | @10:05, DTW:10.51, pH:7.63, temp:11.8, cond:0.487, turb:2.29, DO:2.78, redox:100.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 10:15 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:10 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                     |                |
|---------------------|----------------|
| Constituent Sampled | PFAS           |
| Container Type      | 250 mL Plastic |

|                      |      |
|----------------------|------|
| Number of Containers | 2    |
| Preservative         | None |

### Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to read "A. L. W. K.", is written diagonally across the page.

Signed 2019-12-04 14:36:41 UTC

## 2019-03-06, MW-18-101, MW-18-101

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-03-06 14:01:50 EST by Billy Cobern    |
| Updated                                                                                           | 2019-03-06 14:41:24 EST by Christine Gregg |
| Location                                                                                          | 42.74535434, -84.5860554                   |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-03-06                                 |
| Well Identification                                                                               | MW-18-101                                  |
| Well ID                                                                                           | MW-18-101                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy Windy Snow 15 degrees               |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 62.73         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 86.9          |
| Water Column                                                                                                                                                                                                                                              | 24.17         |
| Gallons in Well                                                                                                                                                                                                                                           | 3.93          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 84.5          |
| Purge Start                                                                                                                                                                                                                                               | 14:10         |

### @14:10, DTW:62.73, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 14:10                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 62.73                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @14:10, DTW:62.73, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:15, DTW:62.85, pH:7.6, temp:5.4, cond:1.01, turb:36.6, DO:8.4, redox:11.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 62.85 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.6   |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.01                                                                          |
| Turbidity (NTU)               | 36.6                                                                          |
| Dissolved Oxygen (mg/L)       | 8.4                                                                           |
| Temperature (Degrees Celsius) | 5.4                                                                           |
| Redox (ORP mV)                | 11.9                                                                          |
| parameters                    | @14:15, DTW:62.85, pH:7.6, temp:5.4, cond:1.01, turb:36.6, DO:8.4, redox:11.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:20, DTW:62.85, pH:7.59, temp:5.5, cond:1, turb:14.7, DO:3.12, redox:3.4**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 14:20                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 100                                                                         |
| Depth to Water (ft)              | 62.85                                                                       |
| Milliliters Purged (total)       | 1000                                                                        |
| pH                               | 7.59                                                                        |
| Conductivity (mS/cm)             | 1                                                                           |
| Turbidity (NTU)                  | 14.7                                                                        |
| Dissolved Oxygen (mg/L)          | 3.12                                                                        |
| Temperature (Degrees Celsius)    | 5.5                                                                         |
| Redox (ORP mV)                   | 3.4                                                                         |
| parameters                       | @14:20, DTW:62.85, pH:7.59, temp:5.5, cond:1, turb:14.7, DO:3.12, redox:3.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:25, DTW:62.85, pH:7.58, temp:5.3, cond:0.99, turb:10.8, DO:1.85, redox:1.2**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:25                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 62.85                                                                          |
| Milliliters Purged (total)       | 1500                                                                           |
| pH                               | 7.58                                                                           |
| Conductivity (mS/cm)             | 0.99                                                                           |
| Turbidity (NTU)                  | 10.8                                                                           |
| Dissolved Oxygen (mg/L)          | 1.85                                                                           |
| Temperature (Degrees Celsius)    | 5.3                                                                            |
| Redox (ORP mV)                   | 1.2                                                                            |
| parameters                       | @14:25, DTW:62.85, pH:7.58, temp:5.3, cond:0.99, turb:10.8, DO:1.85, redox:1.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:30, DTW:62.85, pH:7.57, temp:5.1, cond:0.98, turb:9.28, DO:1.26, redox:-1.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:30 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                             |
| Depth to Water (ft)           | 62.85                                                                           |
| Milliliters Purged (total)    | 2000                                                                            |
| pH                            | 7.57                                                                            |
| Conductivity (mS/cm)          | 0.98                                                                            |
| Turbidity (NTU)               | 9.28                                                                            |
| Dissolved Oxygen (mg/L)       | 1.26                                                                            |
| Temperature (Degrees Celsius) | 5.1                                                                             |
| Redox (ORP mV)                | -1.7                                                                            |
| parameters                    | @14:30, DTW:62.85, pH:7.57, temp:5.1, cond:0.98, turb:9.28, DO:1.26, redox:-1.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:35, DTW:62.85, pH:7.55, temp:5.3, cond:0.97, turb:9.78, DO:1.21, redox:-3.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 62.85                                                                           |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 7.55                                                                            |
| Conductivity (mS/cm)             | 0.97                                                                            |
| Turbidity (NTU)                  | 9.78                                                                            |
| Dissolved Oxygen (mg/L)          | 1.21                                                                            |
| Temperature (Degrees Celsius)    | 5.3                                                                             |
| Redox (ORP mV)                   | -3.9                                                                            |
| parameters                       | @14:35, DTW:62.85, pH:7.55, temp:5.3, cond:0.97, turb:9.78, DO:1.21, redox:-3.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:40, DTW:62.85, pH:7.55, temp:5.4, cond:0.97, turb:9.93, DO:1.18, redox:-7.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 62.85                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.55                                                                            |
| Conductivity (mS/cm)             | 0.97                                                                            |
| Turbidity (NTU)                  | 9.93                                                                            |
| Dissolved Oxygen (mg/L)          | 1.18                                                                            |
| Temperature (Degrees Celsius)    | 5.4                                                                             |
| Redox (ORP mV)                   | -7.5                                                                            |
| parameters                       | @14:40, DTW:62.85, pH:7.55, temp:5.4, cond:0.97, turb:9.93, DO:1.18, redox:-7.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 14:40       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 3000        |
| Well Volumes Purged           | 0.2         |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:40 |
| Color         | Clear |
| Notable odors | No    |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |                 |
|--------------------------|-----------------|
| Well Location            | On site Plant 3 |
| Condition of Well        | Good            |
| Well Locked at Arrival   | No              |
| Well Locked at Departure | Yes             |
| Comments                 | Installed lock  |
| Signature                |                 |

A handwritten signature in black ink, appearing to be 'Bq/h' followed by a horizontal line.

Signed 2019-03-06 19:03:17 UTC

## 2019-06-11, MW-18-101, MW-18-101

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-11 10:57:07 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-11 11:15:12 EDT by Christine Gregg |
| Location                                                                                          | 42.74528213, -84.58648288                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-11                                 |
| Well Identification                                                                               | MW-18-101                                  |
| Well ID                                                                                           | MW-18-101                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Sunny, 75F                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 62.61         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 86.95         |
| Water Column                                                                                                                                                                                                                                              | 24.34         |
| Gallons in Well                                                                                                                                                                                                                                           | 3.96          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 84.45         |
| Purge Start                                                                                                                                                                                                                                               | 10:55         |

### @11:00, DTW:63.41, pH:6.94, temp:14.3, cond:1.49, turb:44.3, DO:0.78, redox:-145.7

|                               |                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------|
| Reading Time                  | 11:00                                                                              |
| Rate (mL/min)                 | 200                                                                                |
| Depth to Water (ft)           | 63.41                                                                              |
| Milliliters Purged (total)    | 1000                                                                               |
| pH                            | 6.94                                                                               |
| Conductivity (mS/cm)          | 1.49                                                                               |
| Turbidity (NTU)               | 44.3                                                                               |
| Dissolved Oxygen (mg/L)       | 0.78                                                                               |
| Temperature (Degrees Celsius) | 14.3                                                                               |
| Redox (ORP mV)                | -145.7                                                                             |
| parameters                    | @11:00, DTW:63.41, pH:6.94, temp:14.3, cond:1.49, turb:44.3, DO:0.78, redox:-145.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:05, DTW:63.55, pH:6.99, temp:13.5, cond:1.44, turb:21.7, DO:0.22, redox:-178.4**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 11:05                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 63.55                                                                              |
| Milliliters Purged (total)       | 2000                                                                               |
| pH                               | 6.99                                                                               |
| Conductivity (mS/cm)             | 1.44                                                                               |
| Turbidity (NTU)                  | 21.7                                                                               |
| Dissolved Oxygen (mg/L)          | 0.22                                                                               |
| Temperature (Degrees Celsius)    | 13.5                                                                               |
| Redox (ORP mV)                   | -178.4                                                                             |
| parameters                       | @11:05, DTW:63.55, pH:6.99, temp:13.5, cond:1.44, turb:21.7, DO:0.22, redox:-178.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:10, DTW:63.55, pH:6.98, temp:13.6, cond:1.47, turb:13.3, DO:0.25, redox:-180.9**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 11:10                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 63.55                                                                              |
| Milliliters Purged (total)       | 3000                                                                               |
| pH                               | 6.98                                                                               |
| Conductivity (mS/cm)             | 1.47                                                                               |
| Turbidity (NTU)                  | 13.3                                                                               |
| Dissolved Oxygen (mg/L)          | 0.25                                                                               |
| Temperature (Degrees Celsius)    | 13.6                                                                               |
| Redox (ORP mV)                   | -180.9                                                                             |
| parameters                       | @11:10, DTW:63.55, pH:6.98, temp:13.6, cond:1.47, turb:13.3, DO:0.25, redox:-180.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:15, DTW:63.55, pH:6.97, temp:13.5, cond:1.48, turb:6.84, DO:0.22, redox:-182.6**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 11:15  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 200    |
| Depth to Water (ft)              | 63.55  |
| Milliliters Purged (total)       | 4000   |
| pH                               | 6.97   |
| Conductivity (mS/cm)             | 1.48   |
| Turbidity (NTU)                  | 6.84   |
| Dissolved Oxygen (mg/L)          | 0.22   |
| Temperature (Degrees Celsius)    | 13.5   |
| Redox (ORP mV)                   | -182.6 |



parameters

@11:15, DTW:63.55, pH:6.97, temp:13.5, cond:1.48, turb:6.84, DO:0.22, redox:-182.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 11:25 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 11:20 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                |                |
|----------------|----------------|
| Container Type | 250 mL Plastic |
|----------------|----------------|

|                      |   |
|----------------------|---|
| Number of Containers | 2 |
|----------------------|---|

|              |      |
|--------------|------|
| Preservative | None |
|--------------|------|

### Well Information

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature



Signed 2019-06-11 14:59:00 UTC

## 2019-12-06, MW-18-101

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-06 14:23:30 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-06 15:25:50 UTC by Austin Westhuis |
| Location                                                                                          | 42.745307064655, -84.5864679572029         |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-06                                 |
| Well ID                                                                                           | MW-18-101                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | NA                                         |
| Weather                                                                                           | Partly Cloudy, 35F                         |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 61.74         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 87.45         |
| Water Column                                                                                                                                                                                                                                              | 25.71         |
| Gallons in Well                                                                                                                                                                                                                                           | 4.18          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 84.95         |
| Purge Start                                                                                                                                                                                                                                               | 09:30         |

### @10:05, DTW:62.25, pH:7.09, temp:10.7, cond:1.34, turb:104, DO:1.43, redox:-224.1

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 10:05                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 62.25                                                                             |
| Milliliters Purged (total)    | 1000                                                                              |
| pH                            | 7.09                                                                              |
| Conductivity (mS/cm)          | 1.34                                                                              |
| Turbidity (NTU)               | 104                                                                               |
| Dissolved Oxygen (mg/L)       | 1.43                                                                              |
| Temperature (Degrees Celsius) | 10.7                                                                              |
| Redox (ORP mV)                | -224.1                                                                            |
| parameters                    | @10:05, DTW:62.25, pH:7.09, temp:10.7, cond:1.34, turb:104, DO:1.43, redox:-224.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:10, DTW:62.25, pH:7.1, temp:11.1, cond:1.36, turb:56.6, DO:1.43, redox:-232.2

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 62.25                                                                             |
| Milliliters Purged (total)       | 2000                                                                              |
| pH                               | 7.1                                                                               |
| Conductivity (mS/cm)             | 1.36                                                                              |
| Turbidity (NTU)                  | 56.6                                                                              |
| Dissolved Oxygen (mg/L)          | 1.43                                                                              |
| Temperature (Degrees Celsius)    | 11.1                                                                              |
| Redox (ORP mV)                   | -232.2                                                                            |
| parameters                       | @10:10, DTW:62.25, pH:7.1, temp:11.1, cond:1.36, turb:56.6, DO:1.43, redox:-232.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:15, DTW:62.25, pH:7.04, temp:11.6, cond:1.45, turb:31.1, DO:1.02, redox:-233**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 62.25                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.04                                                                             |
| Conductivity (mS/cm)             | 1.45                                                                             |
| Turbidity (NTU)                  | 31.1                                                                             |
| Dissolved Oxygen (mg/L)          | 1.02                                                                             |
| Temperature (Degrees Celsius)    | 11.6                                                                             |
| Redox (ORP mV)                   | -233                                                                             |
| parameters                       | @10:15, DTW:62.25, pH:7.04, temp:11.6, cond:1.45, turb:31.1, DO:1.02, redox:-233 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:20, DTW:62.25, pH:7.03, temp:11.4, cond:1.45, turb:26.6, DO:0.98, redox:-232.1**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 10:20                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 62.25                                                                              |
| Milliliters Purged (total)       | 4000                                                                               |
| pH                               | 7.03                                                                               |
| Conductivity (mS/cm)             | 1.45                                                                               |
| Turbidity (NTU)                  | 26.6                                                                               |
| Dissolved Oxygen (mg/L)          | 0.98                                                                               |
| Temperature (Degrees Celsius)    | 11.4                                                                               |
| Redox (ORP mV)                   | -232.1                                                                             |
| parameters                       | @10:20, DTW:62.25, pH:7.03, temp:11.4, cond:1.45, turb:26.6, DO:0.98, redox:-232.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:25, DTW:62.25, pH:7.03, temp:11.4, cond:1.45, turb:31.9, DO:0.95, redox:-231.8**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 10:25                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 62.25                                                                              |
| Milliliters Purged (total)       | 5000                                                                               |
| pH                               | 7.03                                                                               |
| Conductivity (mS/cm)             | 1.45                                                                               |
| Turbidity (NTU)                  | 31.9                                                                               |
| Dissolved Oxygen (mg/L)          | 0.95                                                                               |
| Temperature (Degrees Celsius)    | 11.4                                                                               |
| Redox (ORP mV)                   | -231.8                                                                             |
| parameters                       | @10:25, DTW:62.25, pH:7.03, temp:11.4, cond:1.45, turb:31.9, DO:0.95, redox:-231.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 10:40 |
|-----------|-------|

## Sample Information

|               |                 |
|---------------|-----------------|
| Sample Time   | 10:30           |
| Color         | Slight blackish |
| Notable odors | None            |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to be 'Amal' followed by a stylized flourish.

Signed 2019-12-06 14:25:07 UTC

---

## 2019-03-04, MW-18-102, MW-18-102

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-03-04 11:50:59 EST by Billy Cobern    |
| Updated                                                                                           | 2019-03-04 12:12:33 EST by Christine Gregg |
| Location                                                                                          | 42.74564561, -84.57966085                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-03-04                                 |
| Well Identification                                                                               | MW-18-102                                  |
| Well ID                                                                                           | MW-18-102                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy 12 degrees                          |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 7.69          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 14.75         |
| Water Column                                                                                                                                                                                                                                              | 7.06          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.15          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 12.5          |
| Purge Start                                                                                                                                                                                                                                               | 11:15         |

### @11:15, DTW:7.69, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 11:15                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 7.69                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @11:15, DTW:7.69, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:20, DTW:7.89, pH:7.32, temp:5.8, cond:0.639, turb:213, DO:4.05, redox:28.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 7.89  |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.32  |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.639                                                                          |
| Turbidity (NTU)               | 213                                                                            |
| Dissolved Oxygen (mg/L)       | 4.05                                                                           |
| Temperature (Degrees Celsius) | 5.8                                                                            |
| Redox (ORP mV)                | 28.7                                                                           |
| parameters                    | @11:20, DTW:7.89, pH:7.32, temp:5.8, cond:0.639, turb:213, DO:4.05, redox:28.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:25, DTW:7.93, pH:7.32, temp:5.9, cond:0.639, turb:243, DO:3.97, redox:28.2**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 7.93                                                                           |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 7.32                                                                           |
| Conductivity (mS/cm)             | 0.639                                                                          |
| Turbidity (NTU)                  | 243                                                                            |
| Dissolved Oxygen (mg/L)          | 3.97                                                                           |
| Temperature (Degrees Celsius)    | 5.9                                                                            |
| Redox (ORP mV)                   | 28.2                                                                           |
| parameters                       | @11:25, DTW:7.93, pH:7.32, temp:5.9, cond:0.639, turb:243, DO:3.97, redox:28.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:30, DTW:7.95, pH:7.33, temp:5.8, cond:0.637, turb:146, DO:4.04, redox:27.7**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:30                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 7.95                                                                           |
| Milliliters Purged (total)       | 1500                                                                           |
| pH                               | 7.33                                                                           |
| Conductivity (mS/cm)             | 0.637                                                                          |
| Turbidity (NTU)                  | 146                                                                            |
| Dissolved Oxygen (mg/L)          | 4.04                                                                           |
| Temperature (Degrees Celsius)    | 5.8                                                                            |
| Redox (ORP mV)                   | 27.7                                                                           |
| parameters                       | @11:30, DTW:7.95, pH:7.33, temp:5.8, cond:0.637, turb:146, DO:4.04, redox:27.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:35, DTW:7.95, pH:7.34, temp:5.8, cond:0.633, turb:121, DO:4.03, redox:27.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:35 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                            |
| Depth to Water (ft)           | 7.95                                                                           |
| Milliliters Purged (total)    | 2000                                                                           |
| pH                            | 7.34                                                                           |
| Conductivity (mS/cm)          | 0.633                                                                          |
| Turbidity (NTU)               | 121                                                                            |
| Dissolved Oxygen (mg/L)       | 4.03                                                                           |
| Temperature (Degrees Celsius) | 5.8                                                                            |
| Redox (ORP mV)                | 27.4                                                                           |
| parameters                    | @11:35, DTW:7.95, pH:7.34, temp:5.8, cond:0.633, turb:121, DO:4.03, redox:27.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:40, DTW:7.95, pH:7.34, temp:5.8, cond:0.632, turb:98.6, DO:4.07, redox:27.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 7.95                                                                            |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 7.34                                                                            |
| Conductivity (mS/cm)             | 0.632                                                                           |
| Turbidity (NTU)                  | 98.6                                                                            |
| Dissolved Oxygen (mg/L)          | 4.07                                                                            |
| Temperature (Degrees Celsius)    | 5.8                                                                             |
| Redox (ORP mV)                   | 27.2                                                                            |
| parameters                       | @11:40, DTW:7.95, pH:7.34, temp:5.8, cond:0.632, turb:98.6, DO:4.07, redox:27.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:45, DTW:7.95, pH:7.35, temp:5.9, cond:0.631, turb:56.8, DO:4.07, redox:26.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 7.95                                                                            |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.35                                                                            |
| Conductivity (mS/cm)             | 0.631                                                                           |
| Turbidity (NTU)                  | 56.8                                                                            |
| Dissolved Oxygen (mg/L)          | 4.07                                                                            |
| Temperature (Degrees Celsius)    | 5.9                                                                             |
| Redox (ORP mV)                   | 26.7                                                                            |
| parameters                       | @11:45, DTW:7.95, pH:7.35, temp:5.9, cond:0.631, turb:56.8, DO:4.07, redox:26.7 |



Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:50, DTW:7.95, pH:7.35, temp:6, cond:0.63, turb:35.1, DO:4.03, redox:26.1**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 11:50                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 7.95                                                                         |
| Milliliters Purged (total)       | 3500                                                                         |
| pH                               | 7.35                                                                         |
| Conductivity (mS/cm)             | 0.63                                                                         |
| Turbidity (NTU)                  | 35.1                                                                         |
| Dissolved Oxygen (mg/L)          | 4.03                                                                         |
| Temperature (Degrees Celsius)    | 6                                                                            |
| Redox (ORP mV)                   | 26.1                                                                         |
| parameters                       | @11:50, DTW:7.95, pH:7.35, temp:6, cond:0.63, turb:35.1, DO:4.03, redox:26.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:55, DTW:7.95, pH:7.35, temp:6, cond:0.631, turb:39, DO:4, redox:25.7**

|                                  |                                                                          |
|----------------------------------|--------------------------------------------------------------------------|
| Reading Time                     | 11:55                                                                    |
| Minutes Elapsed between readings | 5                                                                        |
| Rate (mL/min)                    | 100                                                                      |
| Depth to Water (ft)              | 7.95                                                                     |
| Milliliters Purged (total)       | 4000                                                                     |
| pH                               | 7.35                                                                     |
| Conductivity (mS/cm)             | 0.631                                                                    |
| Turbidity (NTU)                  | 39                                                                       |
| Dissolved Oxygen (mg/L)          | 4                                                                        |
| Temperature (Degrees Celsius)    | 6                                                                        |
| Redox (ORP mV)                   | 25.7                                                                     |
| parameters                       | @11:55, DTW:7.95, pH:7.35, temp:6, cond:0.631, turb:39, DO:4, redox:25.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:00, DTW:7.95, pH:7.36, temp:6, cond:0.631, turb:31.3, DO:4.13, redox:25.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 7.95  |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.36  |
| Conductivity (mS/cm)             | 0.631 |
| Turbidity (NTU)                  | 31.3  |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 4.13                                                                          |
| Temperature (Degrees Celsius) | 6                                                                             |
| Redox (ORP mV)                | 25.4                                                                          |
| parameters                    | @12:00, DTW:7.95, pH:7.36, temp:6, cond:0.631, turb:31.3, DO:4.13, redox:25.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@12:05, DTW:7.95, pH:7.36, temp:6, cond:0.631, turb:27.9, DO:4.09, redox:25.1**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 12:05                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 7.95                                                                          |
| Milliliters Purged (total)       | 5000                                                                          |
| pH                               | 7.36                                                                          |
| Conductivity (mS/cm)             | 0.631                                                                         |
| Turbidity (NTU)                  | 27.9                                                                          |
| Dissolved Oxygen (mg/L)          | 4.09                                                                          |
| Temperature (Degrees Celsius)    | 6                                                                             |
| Redox (ORP mV)                   | 25.1                                                                          |
| parameters                       | @12:05, DTW:7.95, pH:7.36, temp:6, cond:0.631, turb:27.9, DO:4.09, redox:25.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@12:10, DTW:7.95, pH:7.36, temp:6, cond:0.632, turb:29.9, DO:4.1, redox:24.9**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 12:10                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 7.95                                                                         |
| Milliliters Purged (total)       | 5500                                                                         |
| pH                               | 7.36                                                                         |
| Conductivity (mS/cm)             | 0.632                                                                        |
| Turbidity (NTU)                  | 29.9                                                                         |
| Dissolved Oxygen (mg/L)          | 4.1                                                                          |
| Temperature (Degrees Celsius)    | 6                                                                            |
| Redox (ORP mV)                   | 24.9                                                                         |
| parameters                       | @12:10, DTW:7.95, pH:7.36, temp:6, cond:0.632, turb:29.9, DO:4.1, redox:24.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@12:15, DTW:7.95, pH:7.36, temp:6, cond:0.632, turb:28.6, DO:4.09, redox:24.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 7.95  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Milliliters Purged (total)                                                                                                                                                                                                                                                                                                                       | 6000                                                                          |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.36                                                                          |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 0.632                                                                         |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 28.6                                                                          |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 4.09                                                                          |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 6                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 24.7                                                                          |
| parameters                                                                                                                                                                                                                                                                                                                                       | @12:15, DTW:7.95, pH:7.36, temp:6, cond:0.632, turb:28.6, DO:4.09, redox:24.7 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                               |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 12:15                                                                         |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                   |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6000                                                                          |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 1.38                                                                          |

## Sample Information

|               |              |
|---------------|--------------|
| Sample Time   | 12:15        |
| Color         | Tan to clear |
| Notable odors | No           |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | Off site |
| Condition of Well        | Good     |
| Well Locked at Arrival   | No       |
| Well Locked at Departure | Yes      |

Signature

A handwritten signature in black ink, appearing to read 'Zuh'. The 'Z' is a simple cursive loop, the 'u' is a small loop, and the 'h' is a tall, thin stroke with a horizontal base.

Signed 2019-03-04 16:53:28 UTC

---

## 2019-06-06, MW-18-102, MW-18-102

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 10:37:19 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-06 11:05:23 EDT by Christine Gregg |
| Location                                                                                          | 42.745555, -84.57963578                    |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-18-102                                  |
| Well ID                                                                                           | MW-18-102                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Cloudy, 70F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 6.88          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 14.75         |
| Water Column                                                                                                                                                                                                                                           | 7.87          |
| Gallons in Well                                                                                                                                                                                                                                        | 1.28          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 12.25         |
| Purge Start                                                                                                                                                                                                                                            | 10:40         |

### @10:45, DTW:7.14, pH:7.27, temp:11.2, cond:0.52, turb:4.83, DO:3.66, redox:92.2

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 10:45                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 7.14                                                                            |
| Milliliters Purged (total)    | 1000                                                                            |
| pH                            | 7.27                                                                            |
| Conductivity (mS/cm)          | 0.52                                                                            |
| Turbidity (NTU)               | 4.83                                                                            |
| Dissolved Oxygen (mg/L)       | 3.66                                                                            |
| Temperature (Degrees Celsius) | 11.2                                                                            |
| Redox (ORP mV)                | 92.2                                                                            |
| parameters                    | @10:45, DTW:7.14, pH:7.27, temp:11.2, cond:0.52, turb:4.83, DO:3.66, redox:92.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:50, DTW:7.21, pH:7.23, temp:11.1, cond:0.52, turb:3.27, DO:2.68, redox:93.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:50                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 7.21                                                                            |
| Milliliters Purged (total)       | 2000                                                                            |
| pH                               | 7.23                                                                            |
| Conductivity (mS/cm)             | 0.52                                                                            |
| Turbidity (NTU)                  | 3.27                                                                            |
| Dissolved Oxygen (mg/L)          | 2.68                                                                            |
| Temperature (Degrees Celsius)    | 11.1                                                                            |
| Redox (ORP mV)                   | 93.3                                                                            |
| parameters                       | @10:50, DTW:7.21, pH:7.23, temp:11.1, cond:0.52, turb:3.27, DO:2.68, redox:93.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:55, DTW:7.21, pH:7.22, temp:11.1, cond:0.52, turb:2.8, DO:1.94, redox:85.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 10:55                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 7.21                                                                           |
| Milliliters Purged (total)       | 3000                                                                           |
| pH                               | 7.22                                                                           |
| Conductivity (mS/cm)             | 0.52                                                                           |
| Turbidity (NTU)                  | 2.8                                                                            |
| Dissolved Oxygen (mg/L)          | 1.94                                                                           |
| Temperature (Degrees Celsius)    | 11.1                                                                           |
| Redox (ORP mV)                   | 85.1                                                                           |
| parameters                       | @10:55, DTW:7.21, pH:7.22, temp:11.1, cond:0.52, turb:2.8, DO:1.94, redox:85.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:00, DTW:7.21, pH:7.22, temp:10.9, cond:0.52, turb:2.39, DO:1.84, redox:81.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 7.21  |
| Milliliters Purged (total)       | 4000  |
| pH                               | 7.22  |
| Conductivity (mS/cm)             | 0.52  |
| Turbidity (NTU)                  | 2.39  |
| Dissolved Oxygen (mg/L)          | 1.84  |
| Temperature (Degrees Celsius)    | 10.9  |
| Redox (ORP mV)                   | 81.2  |

parameters

@11:00, DTW:7.21, pH:7.22, temp:10.9, cond:0.52, turb:2.39, DO:1.84, redox:81.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:05, DTW:7.21, pH:7.22, temp:10.9, cond:0.52, turb:1.96, DO:1.83, redox:79.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 7.21  |
| Milliliters Purged (total)       | 5000  |
| pH                               | 7.22  |
| Conductivity (mS/cm)             | 0.52  |
| Turbidity (NTU)                  | 1.96  |
| Dissolved Oxygen (mg/L)          | 1.83  |
| Temperature (Degrees Celsius)    | 10.9  |
| Redox (ORP mV)                   | 79.7  |

parameters

@11:05, DTW:7.21, pH:7.22, temp:10.9, cond:0.52, turb:1.96, DO:1.83, redox:79.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:10 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to read "André" followed by a stylized flourish.

Signed 2019-06-06 14:38:56 UTC

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## 2019-12-04, MW-18-102

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-04 20:01:32 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-04 20:27:00 UTC by Austin Westhuis |
| Location                                                                                          | 42.7456898661728, -84.5797346905662        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-04                                 |
| Well ID                                                                                           | MW-18-102                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | Dup-03                                     |
| Weather                                                                                           | Cloudy, 35F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 7.1           |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 14.65         |
| Water Column                                                                                                                                                                                                                                              | 7.55          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.23          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 12.15         |
| Purge Start                                                                                                                                                                                                                                               | 15:00         |

### @15:05, DTW:7.1, pH:7.31, temp:11.3, cond:0.489, turb:26.3, DO:4.83, redox:-17.6

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 15:05                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 7.1                                                                              |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 7.31                                                                             |
| Conductivity (mS/cm)          | 0.489                                                                            |
| Turbidity (NTU)               | 26.3                                                                             |
| Dissolved Oxygen (mg/L)       | 4.83                                                                             |
| Temperature (Degrees Celsius) | 11.3                                                                             |
| Redox (ORP mV)                | -17.6                                                                            |
| parameters                    | @15:05, DTW:7.1, pH:7.31, temp:11.3, cond:0.489, turb:26.3, DO:4.83, redox:-17.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:10, DTW:7.57, pH:7.22, temp:11.5, cond:0.498, turb:13.8, DO:3.46, redox:-14.1

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 15:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 7.57                                                                              |
| Milliliters Purged (total)       | 2000                                                                              |
| pH                               | 7.22                                                                              |
| Conductivity (mS/cm)             | 0.498                                                                             |
| Turbidity (NTU)                  | 13.8                                                                              |
| Dissolved Oxygen (mg/L)          | 3.46                                                                              |
| Temperature (Degrees Celsius)    | 11.5                                                                              |
| Redox (ORP mV)                   | -14.1                                                                             |
| parameters                       | @15:10, DTW:7.57, pH:7.22, temp:11.5, cond:0.498, turb:13.8, DO:3.46, redox:-14.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:15, DTW:7.57, pH:7.2, temp:11.3, cond:0.497, turb:4.62, DO:2.75, redox:-9.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 7.57                                                                            |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.2                                                                             |
| Conductivity (mS/cm)             | 0.497                                                                           |
| Turbidity (NTU)                  | 4.62                                                                            |
| Dissolved Oxygen (mg/L)          | 2.75                                                                            |
| Temperature (Degrees Celsius)    | 11.3                                                                            |
| Redox (ORP mV)                   | -9.3                                                                            |
| parameters                       | @15:15, DTW:7.57, pH:7.2, temp:11.3, cond:0.497, turb:4.62, DO:2.75, redox:-9.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:20, DTW:7.57, pH:7.13, temp:10.9, cond:0.494, turb:3.16, DO:2.78, redox:-8.81**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 15:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 7.57                                                                              |
| Milliliters Purged (total)       | 4000                                                                              |
| pH                               | 7.13                                                                              |
| Conductivity (mS/cm)             | 0.494                                                                             |
| Turbidity (NTU)                  | 3.16                                                                              |
| Dissolved Oxygen (mg/L)          | 2.78                                                                              |
| Temperature (Degrees Celsius)    | 10.9                                                                              |
| Redox (ORP mV)                   | -8.81                                                                             |
| parameters                       | @15:20, DTW:7.57, pH:7.13, temp:10.9, cond:0.494, turb:3.16, DO:2.78, redox:-8.81 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:25, DTW:7.57, pH:7.18, temp:11, cond:0.493, turb:2.2, DO:2.41, redox:-9.5**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 15:25                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 7.57                                                                          |
| Milliliters Purged (total)       | 5000                                                                          |
| pH                               | 7.18                                                                          |
| Conductivity (mS/cm)             | 0.493                                                                         |
| Turbidity (NTU)                  | 2.2                                                                           |
| Dissolved Oxygen (mg/L)          | 2.41                                                                          |
| Temperature (Degrees Celsius)    | 11                                                                            |
| Redox (ORP mV)                   | -9.5                                                                          |
| parameters                       | @15:25, DTW:7.57, pH:7.18, temp:11, cond:0.493, turb:2.2, DO:2.41, redox:-9.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 15:35 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:30 |
| Color         | Clear |
| Notable odors | None  |

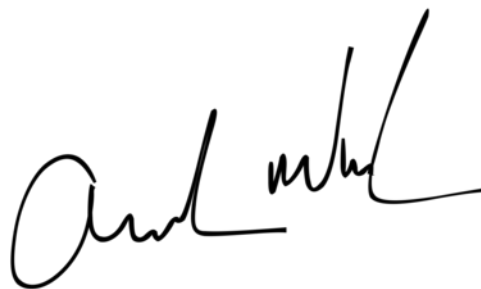
## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to be 'André' or similar, written in a cursive style.

Signed 2019-12-04 20:02:18 UTC

---

## 2019-03-04, MW-18-103, MW-18-103

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-03-04 13:50:05 EST by Billy Cobern    |
| Updated                                                                                           | 2019-03-04 14:45:42 EST by Christine Gregg |
| Location                                                                                          | 42.74562126, -84.58079794                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-03-04                                 |
| Well Identification                                                                               | MW-18-103                                  |
| Well ID                                                                                           | MW-18-103                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy, windy, snow, 12 degrees            |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 0.93          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 10.8          |
| Water Column                                                                                                                                                                                                                                              | 9.87          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.6           |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 8             |
| Purge Start                                                                                                                                                                                                                                               | 14:20         |

### @14:20, DTW:0.93, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 14:20                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 0.93                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @14:20, DTW:0.93, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:25, DTW:1.35, pH:7.18, temp:3.1, cond:0.726, turb:267, DO:1.16, redox:10.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 1.35  |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.18  |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.726                                                                          |
| Turbidity (NTU)               | 267                                                                            |
| Dissolved Oxygen (mg/L)       | 1.16                                                                           |
| Temperature (Degrees Celsius) | 3.1                                                                            |
| Redox (ORP mV)                | 10.3                                                                           |
| parameters                    | @14:25, DTW:1.35, pH:7.18, temp:3.1, cond:0.726, turb:267, DO:1.16, redox:10.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:30, DTW:1.45, pH:7.18, temp:3.1, cond:0.728, turb:211, DO:1.14, redox:10.2**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:30                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 1.45                                                                           |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 7.18                                                                           |
| Conductivity (mS/cm)             | 0.728                                                                          |
| Turbidity (NTU)                  | 211                                                                            |
| Dissolved Oxygen (mg/L)          | 1.14                                                                           |
| Temperature (Degrees Celsius)    | 3.1                                                                            |
| Redox (ORP mV)                   | 10.2                                                                           |
| parameters                       | @14:30, DTW:1.45, pH:7.18, temp:3.1, cond:0.728, turb:211, DO:1.14, redox:10.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:35, DTW:1.53, pH:7.18, temp:3.1, cond:0.729, turb:158, DO:1.12, redox:10**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 14:35                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 1.53                                                                         |
| Milliliters Purged (total)       | 1500                                                                         |
| pH                               | 7.18                                                                         |
| Conductivity (mS/cm)             | 0.729                                                                        |
| Turbidity (NTU)                  | 158                                                                          |
| Dissolved Oxygen (mg/L)          | 1.12                                                                         |
| Temperature (Degrees Celsius)    | 3.1                                                                          |
| Redox (ORP mV)                   | 10                                                                           |
| parameters                       | @14:35, DTW:1.53, pH:7.18, temp:3.1, cond:0.729, turb:158, DO:1.12, redox:10 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:40, DTW:1.6, pH:7.18, temp:3.1, cond:0.727, turb:123, DO:1.11, redox:9.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:40 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                          |
| Depth to Water (ft)           | 1.6                                                                          |
| Milliliters Purged (total)    | 2000                                                                         |
| pH                            | 7.18                                                                         |
| Conductivity (mS/cm)          | 0.727                                                                        |
| Turbidity (NTU)               | 123                                                                          |
| Dissolved Oxygen (mg/L)       | 1.11                                                                         |
| Temperature (Degrees Celsius) | 3.1                                                                          |
| Redox (ORP mV)                | 9.9                                                                          |
| parameters                    | @14:40, DTW:1.6, pH:7.18, temp:3.1, cond:0.727, turb:123, DO:1.11, redox:9.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:45, DTW:1.66, pH:7.19, temp:3.1, cond:0.727, turb:79.9, DO:1.1, redox:9.7**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:45                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 1.66                                                                          |
| Milliliters Purged (total)       | 2500                                                                          |
| pH                               | 7.19                                                                          |
| Conductivity (mS/cm)             | 0.727                                                                         |
| Turbidity (NTU)                  | 79.9                                                                          |
| Dissolved Oxygen (mg/L)          | 1.1                                                                           |
| Temperature (Degrees Celsius)    | 3.1                                                                           |
| Redox (ORP mV)                   | 9.7                                                                           |
| parameters                       | @14:45, DTW:1.66, pH:7.19, temp:3.1, cond:0.727, turb:79.9, DO:1.1, redox:9.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:50, DTW:1.71, pH:7.19, temp:3.1, cond:0.727, turb:56.3, DO:1.08, redox:9.6**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:50                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 1.71                                                                           |
| Milliliters Purged (total)       | 3000                                                                           |
| pH                               | 7.19                                                                           |
| Conductivity (mS/cm)             | 0.727                                                                          |
| Turbidity (NTU)                  | 56.3                                                                           |
| Dissolved Oxygen (mg/L)          | 1.08                                                                           |
| Temperature (Degrees Celsius)    | 3.1                                                                            |
| Redox (ORP mV)                   | 9.6                                                                            |
| parameters                       | @14:50, DTW:1.71, pH:7.19, temp:3.1, cond:0.727, turb:56.3, DO:1.08, redox:9.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:55, DTW:1.75, pH:7.19, temp:3.2, cond:0.724, turb:64.1, DO:1.08, redox:9.5**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:55                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 1.75                                                                           |
| Milliliters Purged (total)       | 3500                                                                           |
| pH                               | 7.19                                                                           |
| Conductivity (mS/cm)             | 0.724                                                                          |
| Turbidity (NTU)                  | 64.1                                                                           |
| Dissolved Oxygen (mg/L)          | 1.08                                                                           |
| Temperature (Degrees Celsius)    | 3.2                                                                            |
| Redox (ORP mV)                   | 9.5                                                                            |
| parameters                       | @14:55, DTW:1.75, pH:7.19, temp:3.2, cond:0.724, turb:64.1, DO:1.08, redox:9.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:00, DTW:1.79, pH:7.19, temp:3.4, cond:0.721, turb:33.4, DO:1.12, redox:9.6**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:00                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 1.79                                                                           |
| Milliliters Purged (total)       | 4000                                                                           |
| pH                               | 7.19                                                                           |
| Conductivity (mS/cm)             | 0.721                                                                          |
| Turbidity (NTU)                  | 33.4                                                                           |
| Dissolved Oxygen (mg/L)          | 1.12                                                                           |
| Temperature (Degrees Celsius)    | 3.4                                                                            |
| Redox (ORP mV)                   | 9.6                                                                            |
| parameters                       | @15:00, DTW:1.79, pH:7.19, temp:3.4, cond:0.721, turb:33.4, DO:1.12, redox:9.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:05, DTW:1.82, pH:7.2, temp:3.1, cond:0.725, turb:34.9, DO:1.14, redox:9.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 1.82  |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.2   |
| Conductivity (mS/cm)             | 0.725 |
| Turbidity (NTU)                  | 34.9  |



|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 1.14                                                                          |
| Temperature (Degrees Celsius) | 3.1                                                                           |
| Redox (ORP mV)                | 9.3                                                                           |
| parameters                    | @15:05, DTW:1.82, pH:7.2, temp:3.1, cond:0.725, turb:34.9, DO:1.14, redox:9.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:10, DTW:1.84, pH:7.2, temp:3.1, cond:0.727, turb:35.1, DO:1.16, redox:9.5

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 15:10                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 1.84                                                                          |
| Milliliters Purged (total)       | 5000                                                                          |
| pH                               | 7.2                                                                           |
| Conductivity (mS/cm)             | 0.727                                                                         |
| Turbidity (NTU)                  | 35.1                                                                          |
| Dissolved Oxygen (mg/L)          | 1.16                                                                          |
| Temperature (Degrees Celsius)    | 3.1                                                                           |
| Redox (ORP mV)                   | 9.5                                                                           |
| parameters                       | @15:10, DTW:1.84, pH:7.2, temp:3.1, cond:0.727, turb:35.1, DO:1.16, redox:9.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 15:10       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 5000        |
| Well Volumes Purged           | 0.83        |

### Sample Information

|               |              |
|---------------|--------------|
| Sample Time   | 15:45        |
| Color         | Tan to clear |
| Notable odors | No           |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |                                                   |
|--------------------------|---------------------------------------------------|
| Well Location            | Good                                              |
| Condition of Well        | Off site                                          |
| Well Locked at Arrival   | No                                                |
| Well Locked at Departure | Yes                                               |
| Comments                 | Installed lock, didn't meet drawdown requirements |

Signature

A handwritten signature in black ink, consisting of a stylized '3', a comma, and a cursive 'h' followed by a horizontal line.

Signed 2019-03-04 18:53:03 UTC

---

## 2019-06-06, MW-18-103, MW-18-103

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 15:03:52 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-06 15:33:18 EDT by Christine Gregg |
| Location                                                                                          | 42.7447876, -84.58088041                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-18-103                                  |
| Well ID                                                                                           | MW-18-103                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Sunny, 70F                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 1.44          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 10.8          |
| Water Column                                                                                                                                                                                                                                           | 9.36          |
| Gallons in Well                                                                                                                                                                                                                                        | 1.52          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 2             |
| Purge Start                                                                                                                                                                                                                                            | 15:10         |

### @15:15, DTW:1.96, pH:7.1, temp:12.5, cond:0.74, turb:3.84, DO:1.27, redox:192.5

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 15:15                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 1.96                                                                            |
| Milliliters Purged (total)    | 1000                                                                            |
| pH                            | 7.1                                                                             |
| Conductivity (mS/cm)          | 0.74                                                                            |
| Turbidity (NTU)               | 3.84                                                                            |
| Dissolved Oxygen (mg/L)       | 1.27                                                                            |
| Temperature (Degrees Celsius) | 12.5                                                                            |
| Redox (ORP mV)                | 192.5                                                                           |
| parameters                    | @15:15, DTW:1.96, pH:7.1, temp:12.5, cond:0.74, turb:3.84, DO:1.27, redox:192.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:20, DTW:2.24, pH:7.09, temp:12.4, cond:0.72, turb:2.85, DO:1.18, redox:195.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 2.24                                                                             |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 7.09                                                                             |
| Conductivity (mS/cm)             | 0.72                                                                             |
| Turbidity (NTU)                  | 2.85                                                                             |
| Dissolved Oxygen (mg/L)          | 1.18                                                                             |
| Temperature (Degrees Celsius)    | 12.4                                                                             |
| Redox (ORP mV)                   | 195.1                                                                            |
| parameters                       | @15:20, DTW:2.24, pH:7.09, temp:12.4, cond:0.72, turb:2.85, DO:1.18, redox:195.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:25, DTW:2.39, pH:7.08, temp:12.3, cond:0.71, turb:2.43, DO:1.13, redox:197.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 2.39                                                                             |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.08                                                                             |
| Conductivity (mS/cm)             | 0.71                                                                             |
| Turbidity (NTU)                  | 2.43                                                                             |
| Dissolved Oxygen (mg/L)          | 1.13                                                                             |
| Temperature (Degrees Celsius)    | 12.3                                                                             |
| Redox (ORP mV)                   | 197.6                                                                            |
| parameters                       | @15:25, DTW:2.39, pH:7.08, temp:12.3, cond:0.71, turb:2.43, DO:1.13, redox:197.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:30, DTW:2.41, pH:7.08, temp:12.4, cond:0.71, turb:1.88, DO:1.24, redox:199.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 2.41  |
| Milliliters Purged (total)       | 4000  |
| pH                               | 7.08  |
| Conductivity (mS/cm)             | 0.71  |
| Turbidity (NTU)                  | 1.88  |
| Dissolved Oxygen (mg/L)          | 1.24  |
| Temperature (Degrees Celsius)    | 12.4  |
| Redox (ORP mV)                   | 199.9 |

parameters

@15:30, DTW:2.41, pH:7.08, temp:12.4, cond:0.71, turb:1.88, DO:1.24, redox:199.9

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 15:40 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 15:35 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                |                |
|----------------|----------------|
| Container Type | 250 mL Plastic |
|----------------|----------------|

|                      |   |
|----------------------|---|
| Number of Containers | 2 |
|----------------------|---|

|              |      |
|--------------|------|
| Preservative | None |
|--------------|------|

### Well Information

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature

A handwritten signature in black ink, appearing to be 'A. M. K.' or similar, written in a cursive style.

Signed 2019-06-06 19:05:18 UTC

## 2019-08-29, MW-18-103

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 19:14:38 UTC by Gary Schafer |
| Updated                                                                                           | 2020-03-31 19:35:07 UTC by Gary Schafer |
| Location                                                                                          | 42.5032688817405, -83.4426078201117     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-08-29                              |
| Well ID                                                                                           | MW-18-103                               |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 5.48          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 10.8          |
| Water Column                                                                                                                                                                                                                                              | 5.32          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                               | 12:15         |

### @12:20, DTW:6, pH:3.87, temp:17.1, cond:0.69, turb:26.4, DO:0.28, redox:146.7

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Reading Time                  | 12:20                                                                         |
| Rate (mL/min)                 | 100                                                                           |
| Depth to Water (ft)           | 6                                                                             |
| pH                            | 3.87                                                                          |
| Conductivity (mS/cm)          | 0.69                                                                          |
| Turbidity (NTU)               | 26.4                                                                          |
| Dissolved Oxygen (mg/L)       | 0.28                                                                          |
| Temperature (Degrees Celsius) | 17.1                                                                          |
| Redox (ORP mV)                | 146.7                                                                         |
| parameters                    | @12:20, DTW:6, pH:3.87, temp:17.1, cond:0.69, turb:26.4, DO:0.28, redox:146.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:25, DTW:6.12, pH:3.84, temp:17.1, cond:0.69, turb:14.5, DO:0.31, redox:148.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 6.12  |
| pH                               | 3.84  |
| Conductivity (mS/cm)             | 0.69  |
| Turbidity (NTU)                  | 14.5  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.31                                                                             |
| Temperature (Degrees Celsius) | 17.1                                                                             |
| Redox (ORP mV)                | 148.9                                                                            |
| parameters                    | @12:25, DTW:6.12, pH:3.84, temp:17.1, cond:0.69, turb:14.5, DO:0.31, redox:148.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:30, DTW:6.2, pH:3.79, temp:17.2, cond:0.7, turb:76.7, DO:0.4, redox:152.5**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 6.2                                                                           |
| pH                               | 3.79                                                                          |
| Conductivity (mS/cm)             | 0.7                                                                           |
| Turbidity (NTU)                  | 76.7                                                                          |
| Dissolved Oxygen (mg/L)          | 0.4                                                                           |
| Temperature (Degrees Celsius)    | 17.2                                                                          |
| Redox (ORP mV)                   | 152.5                                                                         |
| parameters                       | @12:30, DTW:6.2, pH:3.79, temp:17.2, cond:0.7, turb:76.7, DO:0.4, redox:152.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:35, DTW:6.38, pH:3.78, temp:17.3, cond:0.7, turb:472, DO:0.41, redox:155.7**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 6.38                                                                           |
| pH                               | 3.78                                                                           |
| Conductivity (mS/cm)             | 0.7                                                                            |
| Turbidity (NTU)                  | 472                                                                            |
| Dissolved Oxygen (mg/L)          | 0.41                                                                           |
| Temperature (Degrees Celsius)    | 17.3                                                                           |
| Redox (ORP mV)                   | 155.7                                                                          |
| parameters                       | @12:35, DTW:6.38, pH:3.78, temp:17.3, cond:0.7, turb:472, DO:0.41, redox:155.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:40, DTW:6.5, pH:3.75, temp:17.2, cond:0.7, turb:591, DO:0.36, redox:157.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 6.5   |
| pH                               | 3.75  |
| Conductivity (mS/cm)             | 0.7   |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Turbidity (NTU)               | 591                                                                           |
| Dissolved Oxygen (mg/L)       | 0.36                                                                          |
| Temperature (Degrees Celsius) | 17.2                                                                          |
| Redox (ORP mV)                | 157.3                                                                         |
| parameters                    | @12:40, DTW:6.5, pH:3.75, temp:17.2, cond:0.7, turb:591, DO:0.36, redox:157.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:45, DTW:6.6, pH:3.72, temp:17.6, cond:0.69, turb:680, DO:0.37, redox:160.6**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:45                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 6.6                                                                            |
| pH                               | 3.72                                                                           |
| Conductivity (mS/cm)             | 0.69                                                                           |
| Turbidity (NTU)                  | 680                                                                            |
| Dissolved Oxygen (mg/L)          | 0.37                                                                           |
| Temperature (Degrees Celsius)    | 17.6                                                                           |
| Redox (ORP mV)                   | 160.6                                                                          |
| parameters                       | @12:45, DTW:6.6, pH:3.72, temp:17.6, cond:0.69, turb:680, DO:0.37, redox:160.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:50, DTW:6.61, pH:3.72, temp:18.4, cond:0.69, turb:700, DO:0.65, redox:161.6**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:50                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 6.61                                                                            |
| pH                               | 3.72                                                                            |
| Conductivity (mS/cm)             | 0.69                                                                            |
| Turbidity (NTU)                  | 700                                                                             |
| Dissolved Oxygen (mg/L)          | 0.65                                                                            |
| Temperature (Degrees Celsius)    | 18.4                                                                            |
| Redox (ORP mV)                   | 161.6                                                                           |
| parameters                       | @12:50, DTW:6.61, pH:3.72, temp:18.4, cond:0.69, turb:700, DO:0.65, redox:161.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:55, DTW:6.8, pH:3.71, temp:18.4, cond:0.69, turb:650, DO:0.65, redox:161.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 6.8   |
| pH                               | 3.71  |



|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.69                                                                           |
| Turbidity (NTU)               | 650                                                                            |
| Dissolved Oxygen (mg/L)       | 0.65                                                                           |
| Temperature (Degrees Celsius) | 18.4                                                                           |
| Redox (ORP mV)                | 161.3                                                                          |
| parameters                    | @12:55, DTW:6.8, pH:3.71, temp:18.4, cond:0.69, turb:650, DO:0.65, redox:161.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:00, DTW:6.8, pH:3.91, temp:18.4, cond:0.69, turb:615, DO:2.62, redox:156.5**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:00                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 6.8                                                                            |
| pH                               | 3.91                                                                           |
| Conductivity (mS/cm)             | 0.69                                                                           |
| Turbidity (NTU)                  | 615                                                                            |
| Dissolved Oxygen (mg/L)          | 2.62                                                                           |
| Temperature (Degrees Celsius)    | 18.4                                                                           |
| Redox (ORP mV)                   | 156.5                                                                          |
| parameters                       | @13:00, DTW:6.8, pH:3.91, temp:18.4, cond:0.69, turb:615, DO:2.62, redox:156.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:05, DTW:6.82, pH:3.89, temp:18.5, cond:0.69, turb:152, DO:2.7, redox:158.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:05                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 6.82                                                                           |
| pH                               | 3.89                                                                           |
| Conductivity (mS/cm)             | 0.69                                                                           |
| Turbidity (NTU)                  | 152                                                                            |
| Dissolved Oxygen (mg/L)          | 2.7                                                                            |
| Temperature (Degrees Celsius)    | 18.5                                                                           |
| Redox (ORP mV)                   | 158.1                                                                          |
| parameters                       | @13:05, DTW:6.82, pH:3.89, temp:18.5, cond:0.69, turb:152, DO:2.7, redox:158.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:10, DTW:6.83, pH:3.82, temp:18.5, cond:0.69, turb:62.9, DO:2.71, redox:162.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 6.83  |

|                               |       |
|-------------------------------|-------|
| pH                            | 3.82  |
| Conductivity (mS/cm)          | 0.69  |
| Turbidity (NTU)               | 62.9  |
| Dissolved Oxygen (mg/L)       | 2.71  |
| Temperature (Degrees Celsius) | 18.5  |
| Redox (ORP mV)                | 162.8 |

parameters @13:10, DTW:6.83, pH:3.82, temp:18.5, cond:0.69, turb:62.9, DO:2.71, redox:162.8

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:15, DTW:6.83, pH:3.78, temp:18.3, cond:0.69, turb:42, DO:2.36, redox:165.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 6.83  |
| pH                               | 3.78  |
| Conductivity (mS/cm)             | 0.69  |
| Turbidity (NTU)                  | 42    |
| Dissolved Oxygen (mg/L)          | 2.36  |
| Temperature (Degrees Celsius)    | 18.3  |
| Redox (ORP mV)                   | 165.7 |

parameters @13:15, DTW:6.83, pH:3.78, temp:18.3, cond:0.69, turb:42, DO:2.36, redox:165.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:20, DTW:6.84, pH:3.77, temp:18.3, cond:0.69, turb:21.4, DO:2.7, redox:168**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 6.84  |
| pH                               | 3.77  |
| Conductivity (mS/cm)             | 0.69  |
| Turbidity (NTU)                  | 21.4  |
| Dissolved Oxygen (mg/L)          | 2.7   |
| Temperature (Degrees Celsius)    | 18.3  |
| Redox (ORP mV)                   | 168   |

parameters @13:20, DTW:6.84, pH:3.77, temp:18.3, cond:0.69, turb:21.4, DO:2.7, redox:168

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:25, DTW:6.84, pH:3.75, temp:18.4, cond:0.69, turb:16, DO:2.61, redox:170.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Depth to Water (ft)           | 6.84                                                                           |
| pH                            | 3.75                                                                           |
| Conductivity (mS/cm)          | 0.69                                                                           |
| Turbidity (NTU)               | 16                                                                             |
| Dissolved Oxygen (mg/L)       | 2.61                                                                           |
| Temperature (Degrees Celsius) | 18.4                                                                           |
| Redox (ORP mV)                | 170.3                                                                          |
| parameters                    | @13:25, DTW:6.84, pH:3.75, temp:18.4, cond:0.69, turb:16, DO:2.61, redox:170.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:30, DTW:6.84, pH:3.74, temp:18.1, cond:0.69, turb:10.8, DO:2.65, redox:171.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 6.84                                                                             |
| pH                               | 3.74                                                                             |
| Conductivity (mS/cm)             | 0.69                                                                             |
| Turbidity (NTU)                  | 10.8                                                                             |
| Dissolved Oxygen (mg/L)          | 2.65                                                                             |
| Temperature (Degrees Celsius)    | 18.1                                                                             |
| Redox (ORP mV)                   | 171.6                                                                            |
| parameters                       | @13:30, DTW:6.84, pH:3.74, temp:18.1, cond:0.69, turb:10.8, DO:2.65, redox:171.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:35, DTW:6.88, pH:3.75, temp:18.2, cond:0.69, turb:22.1, DO:2.68, redox:173.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 6.88                                                                             |
| pH                               | 3.75                                                                             |
| Conductivity (mS/cm)             | 0.69                                                                             |
| Turbidity (NTU)                  | 22.1                                                                             |
| Dissolved Oxygen (mg/L)          | 2.68                                                                             |
| Temperature (Degrees Celsius)    | 18.2                                                                             |
| Redox (ORP mV)                   | 173.1                                                                            |
| parameters                       | @13:35, DTW:6.88, pH:3.75, temp:18.2, cond:0.69, turb:22.1, DO:2.68, redox:173.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 13:45   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 1.5     |

## Sample Information

|             |       |
|-------------|-------|
| Sample Time | 13:37 |
|-------------|-------|

## Well Information

|               |           |
|---------------|-----------|
| Well Location | MW 18-103 |
|---------------|-----------|

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

|          |                         |
|----------|-------------------------|
| Comments | Well 18-103 was MS &MSD |
|----------|-------------------------|

Signature

A handwritten signature in black ink, reading "Gary Schubert". The signature is written in a cursive, flowing style. The first name "Gary" is on the top line, and the last name "Schubert" is on the line below it, starting under the 'y' of "Gary".

Signed 2020-03-31 19:35:05 UTC

## 2019-12-05, MW-18-103

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-05 18:03:52 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-05 18:52:45 UTC by Austin Westhuis |
| Location                                                                                          | 42.7446706686567, -84.5814635419143        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-05                                 |
| Well ID                                                                                           | MW-18-103                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | NA                                         |
| Weather                                                                                           | Cloudy, 35F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 0.91          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 10.7          |
| Water Column                                                                                                                                                                                                                                              | 9.79          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.59          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 8.2           |
| Purge Start                                                                                                                                                                                                                                               | 13:20         |

### @13:25, DTW:1.54, pH:7.12, temp:9.4, cond:0.438, turb:27.3, DO:1.31, redox:42.4

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 13:25                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 1.54                                                                            |
| Milliliters Purged (total)    | 1000                                                                            |
| pH                            | 7.12                                                                            |
| Conductivity (mS/cm)          | 0.438                                                                           |
| Turbidity (NTU)               | 27.3                                                                            |
| Dissolved Oxygen (mg/L)       | 1.31                                                                            |
| Temperature (Degrees Celsius) | 9.4                                                                             |
| Redox (ORP mV)                | 42.4                                                                            |
| parameters                    | @13:25, DTW:1.54, pH:7.12, temp:9.4, cond:0.438, turb:27.3, DO:1.31, redox:42.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:30, DTW:1.54, pH:7.1, temp:9.4, cond:0.442, turb:14.8, DO:1.27, redox:43.7

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:30                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 1.54                                                                           |
| Milliliters Purged (total)       | 2000                                                                           |
| pH                               | 7.1                                                                            |
| Conductivity (mS/cm)             | 0.442                                                                          |
| Turbidity (NTU)                  | 14.8                                                                           |
| Dissolved Oxygen (mg/L)          | 1.27                                                                           |
| Temperature (Degrees Celsius)    | 9.4                                                                            |
| Redox (ORP mV)                   | 43.7                                                                           |
| parameters                       | @13:30, DTW:1.54, pH:7.1, temp:9.4, cond:0.442, turb:14.8, DO:1.27, redox:43.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:35, DTW:1.54, pH:7.08, temp:9.3, cond:0.448, turb:9.83, DO:1.12, redox:43.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 1.54                                                                            |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.08                                                                            |
| Conductivity (mS/cm)             | 0.448                                                                           |
| Turbidity (NTU)                  | 9.83                                                                            |
| Dissolved Oxygen (mg/L)          | 1.12                                                                            |
| Temperature (Degrees Celsius)    | 9.3                                                                             |
| Redox (ORP mV)                   | 43.7                                                                            |
| parameters                       | @13:35, DTW:1.54, pH:7.08, temp:9.3, cond:0.448, turb:9.83, DO:1.12, redox:43.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:1.54, pH:7.08, temp:9.3, cond:0.451, turb:4.98, DO:1.04, redox:43.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 1.54                                                                            |
| Milliliters Purged (total)       | 4000                                                                            |
| pH                               | 7.08                                                                            |
| Conductivity (mS/cm)             | 0.451                                                                           |
| Turbidity (NTU)                  | 4.98                                                                            |
| Dissolved Oxygen (mg/L)          | 1.04                                                                            |
| Temperature (Degrees Celsius)    | 9.3                                                                             |
| Redox (ORP mV)                   | 43.5                                                                            |
| parameters                       | @13:40, DTW:1.54, pH:7.08, temp:9.3, cond:0.451, turb:4.98, DO:1.04, redox:43.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:45, DTW:1.54, pH:7.08, temp:9.4, cond:0.454, turb:2.94, DO:0.96, redox:44.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 1.54                                                                            |
| Milliliters Purged (total)       | 5000                                                                            |
| pH                               | 7.08                                                                            |
| Conductivity (mS/cm)             | 0.454                                                                           |
| Turbidity (NTU)                  | 2.94                                                                            |
| Dissolved Oxygen (mg/L)          | 0.96                                                                            |
| Temperature (Degrees Celsius)    | 9.4                                                                             |
| Redox (ORP mV)                   | 44.1                                                                            |
| parameters                       | @13:45, DTW:1.54, pH:7.08, temp:9.4, cond:0.454, turb:2.94, DO:0.96, redox:44.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:50, DTW:1.54, pH:7.07, temp:9.5, cond:0.457, turb:2.6, DO:0.94, redox:44.3**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:50                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 1.54                                                                           |
| Milliliters Purged (total)       | 6000                                                                           |
| pH                               | 7.07                                                                           |
| Conductivity (mS/cm)             | 0.457                                                                          |
| Turbidity (NTU)                  | 2.6                                                                            |
| Dissolved Oxygen (mg/L)          | 0.94                                                                           |
| Temperature (Degrees Celsius)    | 9.5                                                                            |
| Redox (ORP mV)                   | 44.3                                                                           |
| parameters                       | @13:50, DTW:1.54, pH:7.07, temp:9.5, cond:0.457, turb:2.6, DO:0.94, redox:44.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 14:00 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:55 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                     |                |
|---------------------|----------------|
| Constituent Sampled | PFAS           |
| Container Type      | 250 mL Plastic |

|                      |      |
|----------------------|------|
| Number of Containers | 2    |
| Preservative         | None |

---

**Well Information**

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to read 'AmL Wd'.

Signed 2019-12-05 18:05:39 UTC

---



## 2019-03-04, MW-18-104, MW-18-104

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-03-04 12:43:07 EST by Billy Cobern    |
| Updated                                                                                           | 2019-03-04 13:15:02 EST by Christine Gregg |
| Location                                                                                          | 42.74492338, -84.58067925                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-03-04                                 |
| Well Identification                                                                               | MW-18-104                                  |
| Well ID                                                                                           | MW-18-104                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | MSMSD                                      |
| Weather                                                                                           | Cloudy, snow, wind, 12 degrees             |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 0.6           |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 9.5           |
| Water Column                                                                                                                                                                                                                                           | 8.9           |
| Gallons in Well                                                                                                                                                                                                                                        | 1.45          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 7             |
| Purge Start                                                                                                                                                                                                                                            | 12:40         |

### @12:40, DTW:0.6, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                        |
|----------------------------|--------------------------------------------------------|
| Reading Time               | 12:40                                                  |
| Rate (mL/min)              | 100                                                    |
| Depth to Water (ft)        | 0.6                                                    |
| Milliliters Purged (total) | 0                                                      |
| parameters                 | @12:40, DTW:0.6, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:45, DTW:1.03, pH:7.65, temp:3, cond:0.647, turb:149, DO:0.75, redox:52

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 1.03  |
| Milliliters Purged (total)       | 500   |

|                               |                                                                            |
|-------------------------------|----------------------------------------------------------------------------|
| pH                            | 7.65                                                                       |
| Conductivity (mS/cm)          | 0.647                                                                      |
| Turbidity (NTU)               | 149                                                                        |
| Dissolved Oxygen (mg/L)       | 0.75                                                                       |
| Temperature (Degrees Celsius) | 3                                                                          |
| Redox (ORP mV)                | 52                                                                         |
| parameters                    | @12:45, DTW:1.03, pH:7.65, temp:3, cond:0.647, turb:149, DO:0.75, redox:52 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:50, DTW:1.33, pH:7.65, temp:2.7, cond:0.647, turb:103, DO:0.66, redox:50.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:50                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 1.33                                                                           |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 7.65                                                                           |
| Conductivity (mS/cm)             | 0.647                                                                          |
| Turbidity (NTU)                  | 103                                                                            |
| Dissolved Oxygen (mg/L)          | 0.66                                                                           |
| Temperature (Degrees Celsius)    | 2.7                                                                            |
| Redox (ORP mV)                   | 50.1                                                                           |
| parameters                       | @12:50, DTW:1.33, pH:7.65, temp:2.7, cond:0.647, turb:103, DO:0.66, redox:50.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:55, DTW:1.61, pH:7.58, temp:3.3, cond:0.631, turb:77.9, DO:0.58, redox:50.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:55                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 1.61                                                                            |
| Milliliters Purged (total)       | 1500                                                                            |
| pH                               | 7.58                                                                            |
| Conductivity (mS/cm)             | 0.631                                                                           |
| Turbidity (NTU)                  | 77.9                                                                            |
| Dissolved Oxygen (mg/L)          | 0.58                                                                            |
| Temperature (Degrees Celsius)    | 3.3                                                                             |
| Redox (ORP mV)                   | 50.4                                                                            |
| parameters                       | @12:55, DTW:1.61, pH:7.58, temp:3.3, cond:0.631, turb:77.9, DO:0.58, redox:50.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:00, DTW:1.9, pH:7.65, temp:3.1, cond:0.638, turb:49.8, DO:0.54, redox:45.2**

|              |       |
|--------------|-------|
| Reading Time | 13:00 |
|--------------|-------|

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 1.9                                                                            |
| Milliliters Purged (total)       | 2000                                                                           |
| pH                               | 7.65                                                                           |
| Conductivity (mS/cm)             | 0.638                                                                          |
| Turbidity (NTU)                  | 49.8                                                                           |
| Dissolved Oxygen (mg/L)          | 0.54                                                                           |
| Temperature (Degrees Celsius)    | 3.1                                                                            |
| Redox (ORP mV)                   | 45.2                                                                           |
| parameters                       | @13:00, DTW:1.9, pH:7.65, temp:3.1, cond:0.638, turb:49.8, DO:0.54, redox:45.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:05, DTW:2.19, pH:7.65, temp:3.2, cond:0.639, turb:33.7, DO:0.55, redox:44.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:05                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 2.19                                                                            |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 7.65                                                                            |
| Conductivity (mS/cm)             | 0.639                                                                           |
| Turbidity (NTU)                  | 33.7                                                                            |
| Dissolved Oxygen (mg/L)          | 0.55                                                                            |
| Temperature (Degrees Celsius)    | 3.2                                                                             |
| Redox (ORP mV)                   | 44.5                                                                            |
| parameters                       | @13:05, DTW:2.19, pH:7.65, temp:3.2, cond:0.639, turb:33.7, DO:0.55, redox:44.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:10, DTW:2.45, pH:7.66, temp:3.2, cond:0.635, turb:25.8, DO:0.53, redox:43.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:10                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 2.45                                                                            |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.66                                                                            |
| Conductivity (mS/cm)             | 0.635                                                                           |
| Turbidity (NTU)                  | 25.8                                                                            |
| Dissolved Oxygen (mg/L)          | 0.53                                                                            |
| Temperature (Degrees Celsius)    | 3.2                                                                             |
| Redox (ORP mV)                   | 43.1                                                                            |
| parameters                       | @13:10, DTW:2.45, pH:7.66, temp:3.2, cond:0.635, turb:25.8, DO:0.53, redox:43.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:15, DTW:2.66, pH:7.67, temp:3.1, cond:0.639, turb:20.1, DO:0.53, redox:42.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 2.66                                                                            |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 7.67                                                                            |
| Conductivity (mS/cm)             | 0.639                                                                           |
| Turbidity (NTU)                  | 20.1                                                                            |
| Dissolved Oxygen (mg/L)          | 0.53                                                                            |
| Temperature (Degrees Celsius)    | 3.1                                                                             |
| Redox (ORP mV)                   | 42.4                                                                            |
| parameters                       | @13:15, DTW:2.66, pH:7.67, temp:3.1, cond:0.639, turb:20.1, DO:0.53, redox:42.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:20, DTW:2.85, pH:7.67, temp:2.9, cond:0.64, turb:16.6, DO:0.54, redox:42.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 2.85                                                                           |
| Milliliters Purged (total)       | 4000                                                                           |
| pH                               | 7.67                                                                           |
| Conductivity (mS/cm)             | 0.64                                                                           |
| Turbidity (NTU)                  | 16.6                                                                           |
| Dissolved Oxygen (mg/L)          | 0.54                                                                           |
| Temperature (Degrees Celsius)    | 2.9                                                                            |
| Redox (ORP mV)                   | 42.1                                                                           |
| parameters                       | @13:20, DTW:2.85, pH:7.67, temp:2.9, cond:0.64, turb:16.6, DO:0.54, redox:42.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:25, DTW:3.03, pH:7.67, temp:2.9, cond:0.64, turb:16.6, DO:0.54, redox:41.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 3.03  |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.67  |
| Conductivity (mS/cm)             | 0.64  |
| Turbidity (NTU)                  | 16.6  |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.54                                                                           |
| Temperature (Degrees Celsius) | 2.9                                                                            |
| Redox (ORP mV)                | 41.7                                                                           |
| parameters                    | @13:25, DTW:3.03, pH:7.67, temp:2.9, cond:0.64, turb:16.6, DO:0.54, redox:41.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:30, DTW:3.21, pH:7.67, temp:2.8, cond:0.642, turb:16.1, DO:0.55, redox:41.4

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 3.21                                                                            |
| Milliliters Purged (total)       | 5000                                                                            |
| pH                               | 7.67                                                                            |
| Conductivity (mS/cm)             | 0.642                                                                           |
| Turbidity (NTU)                  | 16.1                                                                            |
| Dissolved Oxygen (mg/L)          | 0.55                                                                            |
| Temperature (Degrees Celsius)    | 2.8                                                                             |
| Redox (ORP mV)                   | 41.4                                                                            |
| parameters                       | @13:30, DTW:3.21, pH:7.67, temp:2.8, cond:0.642, turb:16.1, DO:0.55, redox:41.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 13:30       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 5000        |
| Well Volumes Purged           | 0.91        |

### Sample Information

|               |              |
|---------------|--------------|
| Sample Time   | 13:30        |
| Color         | Tan to clear |
| Notable odors | No           |

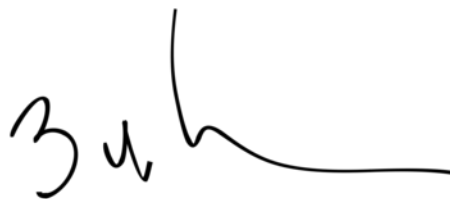
### PFAS

|                      |              |
|----------------------|--------------|
| Constituent Sampled  | PFAS         |
| Container Type       | 250 mL Glass |
| Number of Containers | 6            |
| Preservative         | None         |

### Well Information

|                          |                                                   |
|--------------------------|---------------------------------------------------|
| Well Location            | Off site                                          |
| Condition of Well        | Good                                              |
| Well Locked at Arrival   | No                                                |
| Well Locked at Departure | Yes                                               |
| Comments                 | Installed lock, didn't meet drawdown requirements |

Signature

A handwritten signature in black ink, consisting of stylized cursive letters that appear to be 'Zu' followed by a long horizontal flourish.

Signed 2019-03-04 17:45:59 UTC

---

## 2019-06-06, MW-18-104, MW-18-104

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 11:28:45 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-06 12:06:38 EDT by Christine Gregg |
| Location                                                                                          | 42.74455085, -84.5806422                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-18-104                                  |
| Well ID                                                                                           | MW-18-104                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Cloudy, 70F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 0.3           |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 9.52          |
| Water Column                                                                                                                                                                                                                                           | 9.22          |
| Gallons in Well                                                                                                                                                                                                                                        | 1.5           |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 7.02          |
| Purge Start                                                                                                                                                                                                                                            | 11:35         |

### @11:40, DTW:3.64, pH:7.43, temp:12.5, cond:0.496, turb:6.84, DO:0.1, redox:-72.8

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 11:40                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 3.64                                                                             |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 7.43                                                                             |
| Conductivity (mS/cm)          | 0.496                                                                            |
| Turbidity (NTU)               | 6.84                                                                             |
| Dissolved Oxygen (mg/L)       | 0.1                                                                              |
| Temperature (Degrees Celsius) | 12.5                                                                             |
| Redox (ORP mV)                | -72.8                                                                            |
| parameters                    | @11:40, DTW:3.64, pH:7.43, temp:12.5, cond:0.496, turb:6.84, DO:0.1, redox:-72.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:45, DTW:3.84, pH:7.43, temp:12.6, cond:0.497, turb:3.93, DO:0.1, redox:-68.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 3.84                                                                             |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 7.43                                                                             |
| Conductivity (mS/cm)             | 0.497                                                                            |
| Turbidity (NTU)                  | 3.93                                                                             |
| Dissolved Oxygen (mg/L)          | 0.1                                                                              |
| Temperature (Degrees Celsius)    | 12.6                                                                             |
| Redox (ORP mV)                   | -68.6                                                                            |
| parameters                       | @11:45, DTW:3.84, pH:7.43, temp:12.6, cond:0.497, turb:3.93, DO:0.1, redox:-68.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:50, DTW:3.97, pH:7.37, temp:12.6, cond:0.5, turb:2.69, DO:0.22, redox:-45.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:50                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 3.97                                                                            |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.37                                                                            |
| Conductivity (mS/cm)             | 0.5                                                                             |
| Turbidity (NTU)                  | 2.69                                                                            |
| Dissolved Oxygen (mg/L)          | 0.22                                                                            |
| Temperature (Degrees Celsius)    | 12.6                                                                            |
| Redox (ORP mV)                   | -45.8                                                                           |
| parameters                       | @11:50, DTW:3.97, pH:7.37, temp:12.6, cond:0.5, turb:2.69, DO:0.22, redox:-45.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:55, DTW:3.97, pH:7.36, temp:12.7, cond:0.5, turb:1.78, DO:0.25, redox:-45.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 3.97  |
| Milliliters Purged (total)       | 4000  |
| pH                               | 7.36  |
| Conductivity (mS/cm)             | 0.5   |
| Turbidity (NTU)                  | 1.78  |
| Dissolved Oxygen (mg/L)          | 0.25  |
| Temperature (Degrees Celsius)    | 12.7  |
| Redox (ORP mV)                   | -45.3 |



parameters

@11:55, DTW:3.97, pH:7.36, temp:12.7, cond:0.5, turb:1.78, DO:0.25, redox:-45.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:05, DTW:3.97, pH:7.36, temp:12.7, cond:0.499, turb:1.6, DO:0.25, redox:-44.9**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:05                                                                            |
| Minutes Elapsed between readings | 10                                                                               |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 3.97                                                                             |
| Milliliters Purged (total)       | 5000                                                                             |
| pH                               | 7.36                                                                             |
| Conductivity (mS/cm)             | 0.499                                                                            |
| Turbidity (NTU)                  | 1.6                                                                              |
| Dissolved Oxygen (mg/L)          | 0.25                                                                             |
| Temperature (Degrees Celsius)    | 12.7                                                                             |
| Redox (ORP mV)                   | -44.9                                                                            |
| parameters                       | @12:05, DTW:3.97, pH:7.36, temp:12.7, cond:0.499, turb:1.6, DO:0.25, redox:-44.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 12:15 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:10 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to be 'André' or similar, written in a cursive style.

Signed 2019-06-06 15:30:28 UTC

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## 2019-12-05, MW-18-104

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-05 15:24:19 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-05 15:46:29 UTC by Austin Westhuis |
| Location                                                                                          | 42.7446484147038, -84.5805796702249        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-05                                 |
| Well ID                                                                                           | MW-18-104                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | NA                                         |
| Weather                                                                                           | Cloudy, 35F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 0             |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 9.45          |
| Water Column                                                                                                                                                                                                                                              | 9.45          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.54          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 6.95          |
| Purge Start                                                                                                                                                                                                                                               | 10:25         |

### @10:30, DTW:1.99, pH:7.22, temp:9.9, cond:0.45, turb:3.94, DO:3.88, redox:51.1

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 10:30                                                                          |
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 1.99                                                                           |
| Milliliters Purged (total)    | 1000                                                                           |
| pH                            | 7.22                                                                           |
| Conductivity (mS/cm)          | 0.45                                                                           |
| Turbidity (NTU)               | 3.94                                                                           |
| Dissolved Oxygen (mg/L)       | 3.88                                                                           |
| Temperature (Degrees Celsius) | 9.9                                                                            |
| Redox (ORP mV)                | 51.1                                                                           |
| parameters                    | @10:30, DTW:1.99, pH:7.22, temp:9.9, cond:0.45, turb:3.94, DO:3.88, redox:51.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:35, DTW:1.96, pH:7.2, temp:9.8, cond:0.445, turb:2.92, DO:4.26, redox:51.2

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 10:35                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 1.96                                                                           |
| Milliliters Purged (total)       | 2000                                                                           |
| pH                               | 7.2                                                                            |
| Conductivity (mS/cm)             | 0.445                                                                          |
| Turbidity (NTU)                  | 2.92                                                                           |
| Dissolved Oxygen (mg/L)          | 4.26                                                                           |
| Temperature (Degrees Celsius)    | 9.8                                                                            |
| Redox (ORP mV)                   | 51.2                                                                           |
| parameters                       | @10:35, DTW:1.96, pH:7.2, temp:9.8, cond:0.445, turb:2.92, DO:4.26, redox:51.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:40, DTW:1.96, pH:7.2, temp:9.7, cond:0.439, turb:2.44, DO:4.16, redox:49**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 10:40                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| Depth to Water (ft)              | 1.96                                                                         |
| Milliliters Purged (total)       | 3000                                                                         |
| pH                               | 7.2                                                                          |
| Conductivity (mS/cm)             | 0.439                                                                        |
| Turbidity (NTU)                  | 2.44                                                                         |
| Dissolved Oxygen (mg/L)          | 4.16                                                                         |
| Temperature (Degrees Celsius)    | 9.7                                                                          |
| Redox (ORP mV)                   | 49                                                                           |
| parameters                       | @10:40, DTW:1.96, pH:7.2, temp:9.7, cond:0.439, turb:2.44, DO:4.16, redox:49 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:45, DTW:1.96, pH:7.19, temp:9.6, cond:0.436, turb:2.09, DO:4.12, redox:48**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 10:45                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 1.96                                                                          |
| Milliliters Purged (total)       | 4000                                                                          |
| pH                               | 7.19                                                                          |
| Conductivity (mS/cm)             | 0.436                                                                         |
| Turbidity (NTU)                  | 2.09                                                                          |
| Dissolved Oxygen (mg/L)          | 4.12                                                                          |
| Temperature (Degrees Celsius)    | 9.6                                                                           |
| Redox (ORP mV)                   | 48                                                                            |
| parameters                       | @10:45, DTW:1.96, pH:7.19, temp:9.6, cond:0.436, turb:2.09, DO:4.12, redox:48 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 10:55 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 10:50 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                |                |
|----------------|----------------|
| Container Type | 250 mL Plastic |
|----------------|----------------|

|                      |   |
|----------------------|---|
| Number of Containers | 2 |
|----------------------|---|

|              |      |
|--------------|------|
| Preservative | None |
|--------------|------|

### Well Information

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature

A handwritten signature in black ink, appearing to read "A. W. L.", is centered on the page.

Signed 2019-12-05 15:25:34 UTC

## 2019-03-04, MW-18-105, MW-18-105

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-03-04 14:47:31 EST by Billy Cobern    |
| Updated                                                                                           | 2019-03-04 15:49:10 EST by Christine Gregg |
| Location                                                                                          | 42.74487611, -84.58144192                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-03-04                                 |
| Well Identification                                                                               | MW-18-105                                  |
| Well ID                                                                                           | MW-18-105                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | DUP-03                                     |
| Weather                                                                                           | Cloudy, Windy, Snow, 13 degrees            |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 0.2           |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 11.2          |
| Water Column                                                                                                                                                                                                                                              | 11            |
| Gallons in Well                                                                                                                                                                                                                                           | 1.79          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 8.5           |
| Purge Start                                                                                                                                                                                                                                               | 15:35         |

### @15:35, DTW:0.2, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                        |
|----------------------------|--------------------------------------------------------|
| Reading Time               | 15:35                                                  |
| Rate (mL/min)              | 100                                                    |
| Depth to Water (ft)        | 0.2                                                    |
| Milliliters Purged (total) | 0                                                      |
| parameters                 | @15:35, DTW:0.2, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:40, DTW:0.61, pH:7.51, temp:2.5, cond:0.618, turb:21.1, DO:0.31, redox:-33

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 0.61  |
| Milliliters Purged (total)       | 500   |

|                               |       |
|-------------------------------|-------|
| pH                            | 7.51  |
| Conductivity (mS/cm)          | 0.618 |
| Turbidity (NTU)               | 21.1  |
| Dissolved Oxygen (mg/L)       | 0.31  |
| Temperature (Degrees Celsius) | 2.5   |
| Redox (ORP mV)                | -33   |

parameters @15:40, DTW:0.61, pH:7.51, temp:2.5, cond:0.618, turb:21.1, DO:0.31, redox:-33

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:45, DTW:1.12, pH:7.49, temp:2.2, cond:0.619, turb:14.8, DO:0.24, redox:-48**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 1.12  |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7.49  |
| Conductivity (mS/cm)             | 0.619 |
| Turbidity (NTU)                  | 14.8  |
| Dissolved Oxygen (mg/L)          | 0.24  |
| Temperature (Degrees Celsius)    | 2.2   |
| Redox (ORP mV)                   | -48   |

parameters @15:45, DTW:1.12, pH:7.49, temp:2.2, cond:0.619, turb:14.8, DO:0.24, redox:-48

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:50, DTW:1.32, pH:7.52, temp:2.5, cond:0.621, turb:11.6, DO:0.22, redox:-60.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 1.32  |
| Milliliters Purged (total)       | 1500  |
| pH                               | 7.52  |
| Conductivity (mS/cm)             | 0.621 |
| Turbidity (NTU)                  | 11.6  |
| Dissolved Oxygen (mg/L)          | 0.22  |
| Temperature (Degrees Celsius)    | 2.5   |
| Redox (ORP mV)                   | -60.2 |

parameters @15:50, DTW:1.32, pH:7.52, temp:2.5, cond:0.621, turb:11.6, DO:0.22, redox:-60.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:55, DTW:1.48, pH:7.52, temp:2.7, cond:0.618, turb:9.21, DO:0.21, redox:-63.8**

|              |       |
|--------------|-------|
| Reading Time | 15:55 |
|--------------|-------|

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 1.48                                                                             |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 7.52                                                                             |
| Conductivity (mS/cm)             | 0.618                                                                            |
| Turbidity (NTU)                  | 9.21                                                                             |
| Dissolved Oxygen (mg/L)          | 0.21                                                                             |
| Temperature (Degrees Celsius)    | 2.7                                                                              |
| Redox (ORP mV)                   | -63.8                                                                            |
| parameters                       | @15:55, DTW:1.48, pH:7.52, temp:2.7, cond:0.618, turb:9.21, DO:0.21, redox:-63.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:00, DTW:1.59, pH:7.52, temp:2.5, cond:0.62, turb:9.12, DO:0.22, redox:-65.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 16:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 1.59                                                                            |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 7.52                                                                            |
| Conductivity (mS/cm)             | 0.62                                                                            |
| Turbidity (NTU)                  | 9.12                                                                            |
| Dissolved Oxygen (mg/L)          | 0.22                                                                            |
| Temperature (Degrees Celsius)    | 2.5                                                                             |
| Redox (ORP mV)                   | -65.4                                                                           |
| parameters                       | @16:00, DTW:1.59, pH:7.52, temp:2.5, cond:0.62, turb:9.12, DO:0.22, redox:-65.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:05, DTW:1.68, pH:7.53, temp:2.4, cond:0.622, turb:8.89, DO:0.21, redox:-67.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:05                                                                            |
| Minutes Elapsed between readings | 1385                                                                             |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 1.68                                                                             |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.53                                                                             |
| Conductivity (mS/cm)             | 0.622                                                                            |
| Turbidity (NTU)                  | 8.89                                                                             |
| Dissolved Oxygen (mg/L)          | 0.21                                                                             |
| Temperature (Degrees Celsius)    | 2.4                                                                              |
| Redox (ORP mV)                   | -67.1                                                                            |
| parameters                       | @15:05, DTW:1.68, pH:7.53, temp:2.4, cond:0.622, turb:8.89, DO:0.21, redox:-67.1 |



Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 16:05       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 3000        |
| Well Volumes Purged           | 0.44        |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 16:05 |
| Color         | Clear |
| Notable odors | No    |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 4              |
| Preservative         | None           |

### Well Information

|                          |                                                   |
|--------------------------|---------------------------------------------------|
| Well Location            | Off site                                          |
| Condition of Well        | Good                                              |
| Well Locked at Arrival   | No                                                |
| Well Locked at Departure | Yes                                               |
| Comments                 | Installed lock, didn't meet drawdown requirements |
| Signature                |                                                   |

A handwritten signature in black ink, appearing to read '3eylh' followed by a horizontal line.

Signed 2019-03-04 19:51:06 UTC

## 2019-06-06, MW-18-105, MW-18-105

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 14:08:30 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-06 14:34:13 EDT by Christine Gregg |
| Location                                                                                          | 42.74452164, -84.58133471                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-18-105                                  |
| Well ID                                                                                           | MW-18-105                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | MS/MSD                                     |
| Weather                                                                                           | Partly Cloudy, 70F                         |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 0.22          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 11.22         |
| Water Column                                                                                                                                                                                                                                           | 11            |
| Gallons in Well                                                                                                                                                                                                                                        | 1.79          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 8.72          |
| Purge Start                                                                                                                                                                                                                                            | 14:10         |

### @14:15, DTW:1.91, pH:7.3, temp:12.2, cond:0.5, turb:4.37, DO:0.09, redox:-42.5

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 14:15                                                                          |
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 1.91                                                                           |
| Milliliters Purged (total)    | 1000                                                                           |
| pH                            | 7.3                                                                            |
| Conductivity (mS/cm)          | 0.5                                                                            |
| Turbidity (NTU)               | 4.37                                                                           |
| Dissolved Oxygen (mg/L)       | 0.09                                                                           |
| Temperature (Degrees Celsius) | 12.2                                                                           |
| Redox (ORP mV)                | -42.5                                                                          |
| parameters                    | @14:15, DTW:1.91, pH:7.3, temp:12.2, cond:0.5, turb:4.37, DO:0.09, redox:-42.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:20, DTW:1.91, pH:7.29, temp:12.1, cond:0.51, turb:2.44, DO:0.11, redox:-36.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 1.91                                                                             |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 7.29                                                                             |
| Conductivity (mS/cm)             | 0.51                                                                             |
| Turbidity (NTU)                  | 2.44                                                                             |
| Dissolved Oxygen (mg/L)          | 0.11                                                                             |
| Temperature (Degrees Celsius)    | 12.1                                                                             |
| Redox (ORP mV)                   | -36.6                                                                            |
| parameters                       | @14:20, DTW:1.91, pH:7.29, temp:12.1, cond:0.51, turb:2.44, DO:0.11, redox:-36.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:25, DTW:1.91, pH:7.29, temp:12.1, cond:0.51, turb:2.02, DO:0.12, redox:-34.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 1.91                                                                             |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.29                                                                             |
| Conductivity (mS/cm)             | 0.51                                                                             |
| Turbidity (NTU)                  | 2.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.12                                                                             |
| Temperature (Degrees Celsius)    | 12.1                                                                             |
| Redox (ORP mV)                   | -34.2                                                                            |
| parameters                       | @14:25, DTW:1.91, pH:7.29, temp:12.1, cond:0.51, turb:2.02, DO:0.12, redox:-34.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:30, DTW:1.91, pH:7.26, temp:12, cond:0.52, turb:1.93, DO:0.12, redox:-32.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 1.91  |
| Milliliters Purged (total)       | 4000  |
| pH                               | 7.26  |
| Conductivity (mS/cm)             | 0.52  |
| Turbidity (NTU)                  | 1.93  |
| Dissolved Oxygen (mg/L)          | 0.12  |
| Temperature (Degrees Celsius)    | 12    |
| Redox (ORP mV)                   | -32.2 |

parameters

@14:30, DTW:1.91, pH:7.26, temp:12, cond:0.52, turb:1.93, DO:0.12, redox:-32.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 14:45 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 14:35 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                |                |
|----------------|----------------|
| Container Type | 250 mL Plastic |
|----------------|----------------|

|                      |   |
|----------------------|---|
| Number of Containers | 2 |
|----------------------|---|

|              |      |
|--------------|------|
| Preservative | None |
|--------------|------|

### Well Information

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature



Signed 2019-06-06 18:10:24 UTC

## 2019-08-29, MW-18-105

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 18:55:26 UTC by Gary Schafer |
| Updated                                                                                           | 2020-03-31 19:14:04 UTC by Gary Schafer |
| Location                                                                                          | 42.5031229108968, -83.4423781559648     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-08-29                              |
| Well ID                                                                                           | MW-18-105                               |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 3.85          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 11.2          |
| Water Column                                                                                                                                                                                                                                              | 7.35          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                               | 10:45         |

### @10:50, DTW:4.85, pH:6.95, temp:17.3, cond:0.63, turb:29.4, DO:0.2, redox:-108.8

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 10:50                                                                            |
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 4.85                                                                             |
| pH                            | 6.95                                                                             |
| Conductivity (mS/cm)          | 0.63                                                                             |
| Turbidity (NTU)               | 29.4                                                                             |
| Dissolved Oxygen (mg/L)       | 0.2                                                                              |
| Temperature (Degrees Celsius) | 17.3                                                                             |
| Redox (ORP mV)                | -108.8                                                                           |
| parameters                    | @10:50, DTW:4.85, pH:6.95, temp:17.3, cond:0.63, turb:29.4, DO:0.2, redox:-108.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:55, DTW:4.87, pH:6.77, temp:17.4, cond:0.62, turb:17, DO:0.37, redox:-88.6

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 4.87  |
| pH                               | 6.77  |
| Conductivity (mS/cm)             | 0.62  |
| Turbidity (NTU)                  | 17    |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.37                                                                           |
| Temperature (Degrees Celsius) | 17.4                                                                           |
| Redox (ORP mV)                | -88.6                                                                          |
| parameters                    | @10:55, DTW:4.87, pH:6.77, temp:17.4, cond:0.62, turb:17, DO:0.37, redox:-88.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:00, DTW:5.16, pH:6.67, temp:17.1, cond:0.63, turb:7.28, DO:0.59, redox:-70.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 5.16                                                                             |
| pH                               | 6.67                                                                             |
| Conductivity (mS/cm)             | 0.63                                                                             |
| Turbidity (NTU)                  | 7.28                                                                             |
| Dissolved Oxygen (mg/L)          | 0.59                                                                             |
| Temperature (Degrees Celsius)    | 17.1                                                                             |
| Redox (ORP mV)                   | -70.7                                                                            |
| parameters                       | @11:00, DTW:5.16, pH:6.67, temp:17.1, cond:0.63, turb:7.28, DO:0.59, redox:-70.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:05, DTW:5.23, pH:6.58, temp:17.2, cond:0.63, turb:8.29, DO:0.58, redox:-62.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:05                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 5.23                                                                             |
| pH                               | 6.58                                                                             |
| Conductivity (mS/cm)             | 0.63                                                                             |
| Turbidity (NTU)                  | 8.29                                                                             |
| Dissolved Oxygen (mg/L)          | 0.58                                                                             |
| Temperature (Degrees Celsius)    | 17.2                                                                             |
| Redox (ORP mV)                   | -62.6                                                                            |
| parameters                       | @11:05, DTW:5.23, pH:6.58, temp:17.2, cond:0.63, turb:8.29, DO:0.58, redox:-62.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:10, DTW:5.4, pH:6.43, temp:17.3, cond:0.64, turb:7.29, DO:0.58, redox:-51.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 5.4   |
| pH                               | 6.43  |
| Conductivity (mS/cm)             | 0.64  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Turbidity (NTU)               | 7.29                                                                            |
| Dissolved Oxygen (mg/L)       | 0.58                                                                            |
| Temperature (Degrees Celsius) | 17.3                                                                            |
| Redox (ORP mV)                | -51.5                                                                           |
| parameters                    | @11:10, DTW:5.4, pH:6.43, temp:17.3, cond:0.64, turb:7.29, DO:0.58, redox:-51.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:15, DTW:5.73, pH:6.26, temp:17.7, cond:0.64, turb:5.02, DO:0.62, redox:-41.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 5.73                                                                             |
| pH                               | 6.26                                                                             |
| Conductivity (mS/cm)             | 0.64                                                                             |
| Turbidity (NTU)                  | 5.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.62                                                                             |
| Temperature (Degrees Celsius)    | 17.7                                                                             |
| Redox (ORP mV)                   | -41.2                                                                            |
| parameters                       | @11:15, DTW:5.73, pH:6.26, temp:17.7, cond:0.64, turb:5.02, DO:0.62, redox:-41.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:20, DTW:5.8, pH:6.28, temp:17.8, cond:0.65, turb:3.45, DO:0.56, redox:-44**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 11:20                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 5.8                                                                           |
| pH                               | 6.28                                                                          |
| Conductivity (mS/cm)             | 0.65                                                                          |
| Turbidity (NTU)                  | 3.45                                                                          |
| Dissolved Oxygen (mg/L)          | 0.56                                                                          |
| Temperature (Degrees Celsius)    | 17.8                                                                          |
| Redox (ORP mV)                   | -44                                                                           |
| parameters                       | @11:20, DTW:5.8, pH:6.28, temp:17.8, cond:0.65, turb:3.45, DO:0.56, redox:-44 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:25, DTW:6.1, pH:6.27, temp:17.9, cond:0.65, turb:3.43, DO:0.57, redox:-36.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 6.1   |
| pH                               | 6.27  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.65                                                                            |
| Turbidity (NTU)               | 3.43                                                                            |
| Dissolved Oxygen (mg/L)       | 0.57                                                                            |
| Temperature (Degrees Celsius) | 17.9                                                                            |
| Redox (ORP mV)                | -36.4                                                                           |
| parameters                    | @11:25, DTW:6.1, pH:6.27, temp:17.9, cond:0.65, turb:3.43, DO:0.57, redox:-36.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:30, DTW:6.46, pH:6.26, temp:17.6, cond:0.65, turb:2.92, DO:0.58, redox:-34.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 6.46                                                                             |
| pH                               | 6.26                                                                             |
| Conductivity (mS/cm)             | 0.65                                                                             |
| Turbidity (NTU)                  | 2.92                                                                             |
| Dissolved Oxygen (mg/L)          | 0.58                                                                             |
| Temperature (Degrees Celsius)    | 17.6                                                                             |
| Redox (ORP mV)                   | -34.7                                                                            |
| parameters                       | @11:30, DTW:6.46, pH:6.26, temp:17.6, cond:0.65, turb:2.92, DO:0.58, redox:-34.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 11:42   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 1.5     |

### **Sample Information**

|             |       |
|-------------|-------|
| Sample Time | 11:35 |
|-------------|-------|

### **Well Information**

|                          |           |
|--------------------------|-----------|
| Well Location            | MW 18-105 |
| Condition of Well        | Good      |
| Well Locked at Arrival   | Yes       |
| Well Locked at Departure | Yes       |



Signature

Gary  
Schuler

Signed 2020-03-31 19:14:03 UTC

---

## 2019-12-05, MW-18-105

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-05 17:23:10 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-05 17:49:16 UTC by Austin Westhuis |
| Location                                                                                          | 42.7447015140604, -84.5815054514302        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-05                                 |
| Well ID                                                                                           | MW-18-105                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | NA                                         |
| Weather                                                                                           | Cloudy, 35F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 0             |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 11.2          |
| Water Column                                                                                                                                                                                                                                              | 11.2          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.82          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 8.7           |
| Purge Start                                                                                                                                                                                                                                               | 12:20         |

### @12:25, DTW:1.02, pH:7.16, temp:9.4, cond:0.446, turb:3.77, DO:0.71, redox:44

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Reading Time                  | 12:25                                                                         |
| Rate (mL/min)                 | 200                                                                           |
| Depth to Water (ft)           | 1.02                                                                          |
| Milliliters Purged (total)    | 1000                                                                          |
| pH                            | 7.16                                                                          |
| Conductivity (mS/cm)          | 0.446                                                                         |
| Turbidity (NTU)               | 3.77                                                                          |
| Dissolved Oxygen (mg/L)       | 0.71                                                                          |
| Temperature (Degrees Celsius) | 9.4                                                                           |
| Redox (ORP mV)                | 44                                                                            |
| parameters                    | @12:25, DTW:1.02, pH:7.16, temp:9.4, cond:0.446, turb:3.77, DO:0.71, redox:44 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:30, DTW:1.02, pH:7.14, temp:9.4, cond:0.444, turb:2.18, DO:0.6, redox:41.7

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 1.02                                                                           |
| Milliliters Purged (total)       | 2000                                                                           |
| pH                               | 7.14                                                                           |
| Conductivity (mS/cm)             | 0.444                                                                          |
| Turbidity (NTU)                  | 2.18                                                                           |
| Dissolved Oxygen (mg/L)          | 0.6                                                                            |
| Temperature (Degrees Celsius)    | 9.4                                                                            |
| Redox (ORP mV)                   | 41.7                                                                           |
| parameters                       | @12:30, DTW:1.02, pH:7.14, temp:9.4, cond:0.444, turb:2.18, DO:0.6, redox:41.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:35, DTW:1.02, pH:7.14, temp:9.4, cond:0.443, turb:1.9, DO:0.62, redox:41.3**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 1.02                                                                           |
| Milliliters Purged (total)       | 3000                                                                           |
| pH                               | 7.14                                                                           |
| Conductivity (mS/cm)             | 0.443                                                                          |
| Turbidity (NTU)                  | 1.9                                                                            |
| Dissolved Oxygen (mg/L)          | 0.62                                                                           |
| Temperature (Degrees Celsius)    | 9.4                                                                            |
| Redox (ORP mV)                   | 41.3                                                                           |
| parameters                       | @12:35, DTW:1.02, pH:7.14, temp:9.4, cond:0.443, turb:1.9, DO:0.62, redox:41.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:40, DTW:1.02, pH:7.15, temp:9.4, cond:0.442, turb:1.67, DO:0.55, redox:40.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 1.02                                                                            |
| Milliliters Purged (total)       | 4000                                                                            |
| pH                               | 7.15                                                                            |
| Conductivity (mS/cm)             | 0.442                                                                           |
| Turbidity (NTU)                  | 1.67                                                                            |
| Dissolved Oxygen (mg/L)          | 0.55                                                                            |
| Temperature (Degrees Celsius)    | 9.4                                                                             |
| Redox (ORP mV)                   | 40.2                                                                            |
| parameters                       | @12:40, DTW:1.02, pH:7.15, temp:9.4, cond:0.442, turb:1.67, DO:0.55, redox:40.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:45, DTW:1.02, pH:7.13, temp:9.4, cond:0.439, turb:1.26, DO:0.53, redox:39.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 1.02                                                                            |
| Milliliters Purged (total)       | 5000                                                                            |
| pH                               | 7.13                                                                            |
| Conductivity (mS/cm)             | 0.439                                                                           |
| Turbidity (NTU)                  | 1.26                                                                            |
| Dissolved Oxygen (mg/L)          | 0.53                                                                            |
| Temperature (Degrees Celsius)    | 9.4                                                                             |
| Redox (ORP mV)                   | 39.7                                                                            |
| parameters                       | @12:45, DTW:1.02, pH:7.13, temp:9.4, cond:0.439, turb:1.26, DO:0.53, redox:39.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 12:55 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:50 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to be 'A. L. W.' followed by a long horizontal stroke.

Signed 2019-12-05 17:24:20 UTC

---

## 2019-03-04, MW-18-106, MW-18-106

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-03-04 10:45:47 EST by Billy Cobern    |
| Updated                                                                                           | 2019-03-04 11:24:23 EST by Christine Gregg |
| Location                                                                                          | 42.74391957, -84.57978196                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-03-04                                 |
| Well Identification                                                                               | MW-18-106                                  |
| Well ID                                                                                           | MW-18-106                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | P Cloudy 12 degrees                        |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 1.64          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 9.55          |
| Water Column                                                                                                                                                                                                                                              | 7.91          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.29          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 7             |
| Purge Start                                                                                                                                                                                                                                               | 10:00         |

### @10:00, DTW:1.64, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 10:00                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 1.64                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @10:00, DTW:1.64, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:05, DTW:2.29, pH:7.02, temp:3.7, cond:0.543, turb:13.9, DO:1.44, redox:53.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 2.29  |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.02  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.543                                                                           |
| Turbidity (NTU)               | 13.9                                                                            |
| Dissolved Oxygen (mg/L)       | 1.44                                                                            |
| Temperature (Degrees Celsius) | 3.7                                                                             |
| Redox (ORP mV)                | 53.9                                                                            |
| parameters                    | @10:05, DTW:2.29, pH:7.02, temp:3.7, cond:0.543, turb:13.9, DO:1.44, redox:53.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:10, DTW:2.35, pH:7.05, temp:3.6, cond:0.543, turb:11.4, DO:1.16, redox:50.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:10                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 2.35                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.05                                                                            |
| Conductivity (mS/cm)             | 0.543                                                                           |
| Turbidity (NTU)                  | 11.4                                                                            |
| Dissolved Oxygen (mg/L)          | 1.16                                                                            |
| Temperature (Degrees Celsius)    | 3.6                                                                             |
| Redox (ORP mV)                   | 50.8                                                                            |
| parameters                       | @10:10, DTW:2.35, pH:7.05, temp:3.6, cond:0.543, turb:11.4, DO:1.16, redox:50.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:15, DTW:2.4, pH:7.07, temp:3.6, cond:0.543, turb:10.1, DO:0.85, redox:482**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 10:15                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 2.4                                                                           |
| Milliliters Purged (total)       | 1500                                                                          |
| pH                               | 7.07                                                                          |
| Conductivity (mS/cm)             | 0.543                                                                         |
| Turbidity (NTU)                  | 10.1                                                                          |
| Dissolved Oxygen (mg/L)          | 0.85                                                                          |
| Temperature (Degrees Celsius)    | 3.6                                                                           |
| Redox (ORP mV)                   | 482                                                                           |
| parameters                       | @10:15, DTW:2.4, pH:7.07, temp:3.6, cond:0.543, turb:10.1, DO:0.85, redox:482 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:20, DTW:2.44, pH:7.08, temp:3.4, cond:0.544, turb:9.53, DO:0.73, redox:45.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:20 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                             |
| Depth to Water (ft)           | 2.44                                                                            |
| Milliliters Purged (total)    | 2000                                                                            |
| pH                            | 7.08                                                                            |
| Conductivity (mS/cm)          | 0.544                                                                           |
| Turbidity (NTU)               | 9.53                                                                            |
| Dissolved Oxygen (mg/L)       | 0.73                                                                            |
| Temperature (Degrees Celsius) | 3.4                                                                             |
| Redox (ORP mV)                | 45.3                                                                            |
| parameters                    | @10:20, DTW:2.44, pH:7.08, temp:3.4, cond:0.544, turb:9.53, DO:0.73, redox:45.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:25, DTW:2.47, pH:7.1, temp:3.4, cond:0.543, turb:9.12, DO:0.7, redox:42.7**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 10:25                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 2.47                                                                          |
| Milliliters Purged (total)       | 2500                                                                          |
| pH                               | 7.1                                                                           |
| Conductivity (mS/cm)             | 0.543                                                                         |
| Turbidity (NTU)                  | 9.12                                                                          |
| Dissolved Oxygen (mg/L)          | 0.7                                                                           |
| Temperature (Degrees Celsius)    | 3.4                                                                           |
| Redox (ORP mV)                   | 42.7                                                                          |
| parameters                       | @10:25, DTW:2.47, pH:7.1, temp:3.4, cond:0.543, turb:9.12, DO:0.7, redox:42.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:30, DTW:2.49, pH:7.11, temp:3.5, cond:0.538, turb:8.34, DO:0.66, redox:40.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 2.49                                                                            |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.11                                                                            |
| Conductivity (mS/cm)             | 0.538                                                                           |
| Turbidity (NTU)                  | 8.34                                                                            |
| Dissolved Oxygen (mg/L)          | 0.66                                                                            |
| Temperature (Degrees Celsius)    | 3.5                                                                             |
| Redox (ORP mV)                   | 40.3                                                                            |
| parameters                       | @10:30, DTW:2.49, pH:7.11, temp:3.5, cond:0.538, turb:8.34, DO:0.66, redox:40.3 |



Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:35, DTW:2.52, pH:7.12, temp:3.4, cond:0.539, turb:8.12, DO:0.61, redox:38.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 2.52                                                                            |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 7.12                                                                            |
| Conductivity (mS/cm)             | 0.539                                                                           |
| Turbidity (NTU)                  | 8.12                                                                            |
| Dissolved Oxygen (mg/L)          | 0.61                                                                            |
| Temperature (Degrees Celsius)    | 3.4                                                                             |
| Redox (ORP mV)                   | 38.1                                                                            |
| parameters                       | @10:35, DTW:2.52, pH:7.12, temp:3.4, cond:0.539, turb:8.12, DO:0.61, redox:38.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:40, DTW:2.54, pH:7.13, temp:3.6, cond:0.537, turb:7.22, DO:0.56, redox:35.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 2.54                                                                            |
| Milliliters Purged (total)       | 4000                                                                            |
| pH                               | 7.13                                                                            |
| Conductivity (mS/cm)             | 0.537                                                                           |
| Turbidity (NTU)                  | 7.22                                                                            |
| Dissolved Oxygen (mg/L)          | 0.56                                                                            |
| Temperature (Degrees Celsius)    | 3.6                                                                             |
| Redox (ORP mV)                   | 35.8                                                                            |
| parameters                       | @10:40, DTW:2.54, pH:7.13, temp:3.6, cond:0.537, turb:7.22, DO:0.56, redox:35.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:45, DTW:2.55, pH:7.14, temp:3.3, cond:0.536, turb:7.02, DO:0.54, redox:33.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 2.55  |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.14  |
| Conductivity (mS/cm)             | 0.536 |
| Turbidity (NTU)                  | 7.02  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.54                                                                            |
| Temperature (Degrees Celsius) | 3.3                                                                             |
| Redox (ORP mV)                | 33.5                                                                            |
| parameters                    | @10:45, DTW:2.55, pH:7.14, temp:3.3, cond:0.536, turb:7.02, DO:0.54, redox:33.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:50, DTW:2.56, pH:7.15, temp:3.3, cond:0.537, turb:7.68, DO:0.53, redox:31.3

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:50                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 2.56                                                                            |
| Milliliters Purged (total)       | 5000                                                                            |
| pH                               | 7.15                                                                            |
| Conductivity (mS/cm)             | 0.537                                                                           |
| Turbidity (NTU)                  | 7.68                                                                            |
| Dissolved Oxygen (mg/L)          | 0.53                                                                            |
| Temperature (Degrees Celsius)    | 3.3                                                                             |
| Redox (ORP mV)                   | 31.3                                                                            |
| parameters                       | @10:50, DTW:2.56, pH:7.15, temp:3.3, cond:0.537, turb:7.68, DO:0.53, redox:31.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 10:50       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 5000        |
| Well Volumes Purged           | 1.02        |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:50 |
| Color         | Clear |
| Notable odors | No    |

### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |                                   |
|--------------------------|-----------------------------------|
| Well Location            | Off site                          |
| Condition of Well        | Good                              |
| Well Locked at Arrival   | No                                |
| Well Locked at Departure | Yes                               |
| Comments                 | Didn't meet drawdown requirements |

Signature

A handwritten signature in black ink, consisting of a stylized 'Z' followed by a 'u' and a 'h' with a long horizontal stroke extending to the right.

Signed 2019-03-04 15:48:24 UTC

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## 2019-06-06, MW-18-106, MW-18-106

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 12:32:59 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-06 13:11:43 EDT by Christine Gregg |
| Location                                                                                          | 42.74460047, -84.58069542                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-18-106                                  |
| Well ID                                                                                           | MW-18-106                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Partly Cloudy, 70F                         |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 2.43          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 9.6           |
| Water Column                                                                                                                                                                                                                                           | 7.17          |
| Gallons in Well                                                                                                                                                                                                                                        | 1.17          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 7.1           |
| Purge Start                                                                                                                                                                                                                                            | 12:40         |

### @12:45, DTW:2.56, pH:7.29, temp:12.9, cond:0.57, turb:4.92, DO:0.22, redox:-77.3

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 12:45                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 2.56                                                                             |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 7.29                                                                             |
| Conductivity (mS/cm)          | 0.57                                                                             |
| Turbidity (NTU)               | 4.92                                                                             |
| Dissolved Oxygen (mg/L)       | 0.22                                                                             |
| Temperature (Degrees Celsius) | 12.9                                                                             |
| Redox (ORP mV)                | -77.3                                                                            |
| parameters                    | @12:45, DTW:2.56, pH:7.29, temp:12.9, cond:0.57, turb:4.92, DO:0.22, redox:-77.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:50, DTW:2.82, pH:7.34, temp:13, cond:0.55, turb:3.08, DO:0.11, redox:-96.7**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:50                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 2.82                                                                           |
| Milliliters Purged (total)       | 2000                                                                           |
| pH                               | 7.34                                                                           |
| Conductivity (mS/cm)             | 0.55                                                                           |
| Turbidity (NTU)                  | 3.08                                                                           |
| Dissolved Oxygen (mg/L)          | 0.11                                                                           |
| Temperature (Degrees Celsius)    | 13                                                                             |
| Redox (ORP mV)                   | -96.7                                                                          |
| parameters                       | @12:50, DTW:2.82, pH:7.34, temp:13, cond:0.55, turb:3.08, DO:0.11, redox:-96.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:55, DTW:2.82, pH:7.33, temp:13.5, cond:0.53, turb:2.27, DO:0.1, redox:-97.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:55                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 2.82                                                                            |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.33                                                                            |
| Conductivity (mS/cm)             | 0.53                                                                            |
| Turbidity (NTU)                  | 2.27                                                                            |
| Dissolved Oxygen (mg/L)          | 0.1                                                                             |
| Temperature (Degrees Celsius)    | 13.5                                                                            |
| Redox (ORP mV)                   | -97.4                                                                           |
| parameters                       | @12:55, DTW:2.82, pH:7.33, temp:13.5, cond:0.53, turb:2.27, DO:0.1, redox:-97.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:00, DTW:2.82, pH:7.34, temp:13.1, cond:0.51, turb:2.09, DO:0.11, redox:-79.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 2.82  |
| Milliliters Purged (total)       | 4000  |
| pH                               | 7.34  |
| Conductivity (mS/cm)             | 0.51  |
| Turbidity (NTU)                  | 2.09  |
| Dissolved Oxygen (mg/L)          | 0.11  |
| Temperature (Degrees Celsius)    | 13.1  |
| Redox (ORP mV)                   | -79.3 |

parameters

@13:00, DTW:2.82, pH:7.34, temp:13.1, cond:0.51, turb:2.09, DO:0.11, redox:-79.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:05, DTW:2.82, pH:7.34, temp:13, cond:0.51, turb:1.63, DO:0.11, redox:-78.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 2.82  |
| Milliliters Purged (total)       | 5000  |
| pH                               | 7.34  |
| Conductivity (mS/cm)             | 0.51  |
| Turbidity (NTU)                  | 1.63  |
| Dissolved Oxygen (mg/L)          | 0.11  |
| Temperature (Degrees Celsius)    | 13    |
| Redox (ORP mV)                   | -78.6 |

parameters

@13:05, DTW:2.82, pH:7.34, temp:13, cond:0.51, turb:1.63, DO:0.11, redox:-78.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:10, DTW:2.82, pH:7.33, temp:12.9, cond:0.49, turb:1.34, DO:0.11, redox:-78.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 2.82  |
| Milliliters Purged (total)       | 6000  |
| pH                               | 7.33  |
| Conductivity (mS/cm)             | 0.49  |
| Turbidity (NTU)                  | 1.34  |
| Dissolved Oxygen (mg/L)          | 0.11  |
| Temperature (Degrees Celsius)    | 12.9  |
| Redox (ORP mV)                   | -78.2 |

parameters

@13:10, DTW:2.82, pH:7.33, temp:12.9, cond:0.49, turb:1.34, DO:0.11, redox:-78.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 13:20 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:15 |
| Color         | Clear |
| Notable odors | None  |

## PAHs

|                     |      |
|---------------------|------|
| Constituent Sampled | PAHs |
|---------------------|------|

|                      |                |
|----------------------|----------------|
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |
| Signature                |      |

A handwritten signature in black ink, appearing to be 'C. M. H.' or similar, written in a cursive style.

Signed 2019-06-06 16:34:37 UTC

## 2019-12-05, MW-18-106

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-05 14:23:04 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-05 14:54:50 UTC by Austin Westhuis |
| Location                                                                                          | 42.7439066162731, -84.5797457546783        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-05                                 |
| Well ID                                                                                           | MW-18-106                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | NA                                         |
| Weather                                                                                           | Cloudy, 35F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 1.36          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 9.55          |
| Water Column                                                                                                                                                                                                                                              | 8.19          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.33          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 7.05          |
| Purge Start                                                                                                                                                                                                                                               | 09:20         |

### @09:25, DTW:2.13, pH:7.53, temp:9.5, cond:0.5, turb:14.7, DO:6.18, redox:33.4

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Reading Time                  | 09:25                                                                         |
| Rate (mL/min)                 | 200                                                                           |
| Depth to Water (ft)           | 2.13                                                                          |
| Milliliters Purged (total)    | 1000                                                                          |
| pH                            | 7.53                                                                          |
| Conductivity (mS/cm)          | 0.5                                                                           |
| Turbidity (NTU)               | 14.7                                                                          |
| Dissolved Oxygen (mg/L)       | 6.18                                                                          |
| Temperature (Degrees Celsius) | 9.5                                                                           |
| Redox (ORP mV)                | 33.4                                                                          |
| parameters                    | @09:25, DTW:2.13, pH:7.53, temp:9.5, cond:0.5, turb:14.7, DO:6.18, redox:33.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:30, DTW:2.31, pH:7.14, temp:9.1, cond:0.449, turb:3.73, DO:5.95, redox:45.3



|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 2.31                                                                            |
| Milliliters Purged (total)       | 2000                                                                            |
| pH                               | 7.14                                                                            |
| Conductivity (mS/cm)             | 0.449                                                                           |
| Turbidity (NTU)                  | 3.73                                                                            |
| Dissolved Oxygen (mg/L)          | 5.95                                                                            |
| Temperature (Degrees Celsius)    | 9.1                                                                             |
| Redox (ORP mV)                   | 45.3                                                                            |
| parameters                       | @09:30, DTW:2.31, pH:7.14, temp:9.1, cond:0.449, turb:3.73, DO:5.95, redox:45.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@09:35, DTW:2.13, pH:7.02, temp:9.1, cond:0.442, turb:2.81, DO:6.04, redox:54**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 09:35                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 2.13                                                                          |
| Milliliters Purged (total)       | 3000                                                                          |
| pH                               | 7.02                                                                          |
| Conductivity (mS/cm)             | 0.442                                                                         |
| Turbidity (NTU)                  | 2.81                                                                          |
| Dissolved Oxygen (mg/L)          | 6.04                                                                          |
| Temperature (Degrees Celsius)    | 9.1                                                                           |
| Redox (ORP mV)                   | 54                                                                            |
| parameters                       | @09:35, DTW:2.13, pH:7.02, temp:9.1, cond:0.442, turb:2.81, DO:6.04, redox:54 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@09:40, DTW:2.13, pH:7.02, temp:9.2, cond:0.442, turb:2.44, DO:5.98, redox:56.6**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 2.13                                                                            |
| Milliliters Purged (total)       | 4000                                                                            |
| pH                               | 7.02                                                                            |
| Conductivity (mS/cm)             | 0.442                                                                           |
| Turbidity (NTU)                  | 2.44                                                                            |
| Dissolved Oxygen (mg/L)          | 5.98                                                                            |
| Temperature (Degrees Celsius)    | 9.2                                                                             |
| Redox (ORP mV)                   | 56.6                                                                            |
| parameters                       | @09:40, DTW:2.13, pH:7.02, temp:9.2, cond:0.442, turb:2.44, DO:5.98, redox:56.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:45, DTW:2.13, pH:7.02, temp:9.2, cond:0.439, turb:2.15, DO:5.94, redox:57.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 2.13                                                                            |
| Milliliters Purged (total)       | 5000                                                                            |
| pH                               | 7.02                                                                            |
| Conductivity (mS/cm)             | 0.439                                                                           |
| Turbidity (NTU)                  | 2.15                                                                            |
| Dissolved Oxygen (mg/L)          | 5.94                                                                            |
| Temperature (Degrees Celsius)    | 9.2                                                                             |
| Redox (ORP mV)                   | 57.2                                                                            |
| parameters                       | @09:45, DTW:2.13, pH:7.02, temp:9.2, cond:0.439, turb:2.15, DO:5.94, redox:57.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 09:55 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 09:50 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to be 'A. W. L.' or similar, with a stylized, cursive script.

Signed 2019-12-05 14:24:32 UTC

---

## 2019-06-13, MW-19, MW-19

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-13 09:05:52 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-13 09:41:57 EDT by Christine Gregg |
| Location                                                                                          | 42.7451761, -84.58399027                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-13                                 |
| Well Identification                                                                               | MW-19                                      |
| Well ID                                                                                           | MW-19                                      |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Cloudy, rain, 60F                          |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 49.88         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 64.21         |
| Water Column                                                                                                                                                                                                                                               | 14.33         |
| Gallons in Well                                                                                                                                                                                                                                            | 2.33          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder       |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                   | 61.71         |
| Purge Start                                                                                                                                                                                                                                                | 09:05         |

### @09:10, DTW:50.98, pH:7.59, temp:14.1, cond:0.243, turb:44.8, DO:5.29, redox:205.4

|                               |                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------|
| Reading Time                  | 09:10                                                                              |
| Rate (mL/min)                 | 200                                                                                |
| Depth to Water (ft)           | 50.98                                                                              |
| Milliliters Purged (total)    | 1000                                                                               |
| pH                            | 7.59                                                                               |
| Conductivity (mS/cm)          | 0.243                                                                              |
| Turbidity (NTU)               | 44.8                                                                               |
| Dissolved Oxygen (mg/L)       | 5.29                                                                               |
| Temperature (Degrees Celsius) | 14.1                                                                               |
| Redox (ORP mV)                | 205.4                                                                              |
| parameters                    | @09:10, DTW:50.98, pH:7.59, temp:14.1, cond:0.243, turb:44.8, DO:5.29, redox:205.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:15, DTW:51.31, pH:7.47, temp:14, cond:0.239, turb:21.6, DO:5.04, redox:214.9**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 51.31                                                                            |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 7.47                                                                             |
| Conductivity (mS/cm)             | 0.239                                                                            |
| Turbidity (NTU)                  | 21.6                                                                             |
| Dissolved Oxygen (mg/L)          | 5.04                                                                             |
| Temperature (Degrees Celsius)    | 14                                                                               |
| Redox (ORP mV)                   | 214.9                                                                            |
| parameters                       | @09:15, DTW:51.31, pH:7.47, temp:14, cond:0.239, turb:21.6, DO:5.04, redox:214.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:20, DTW:51.35, pH:7.46, temp:13.9, cond:0.239, turb:13.2, DO:4.98, redox:218.4**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 09:20                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 51.35                                                                              |
| Milliliters Purged (total)       | 3000                                                                               |
| pH                               | 7.46                                                                               |
| Conductivity (mS/cm)             | 0.239                                                                              |
| Turbidity (NTU)                  | 13.2                                                                               |
| Dissolved Oxygen (mg/L)          | 4.98                                                                               |
| Temperature (Degrees Celsius)    | 13.9                                                                               |
| Redox (ORP mV)                   | 218.4                                                                              |
| parameters                       | @09:20, DTW:51.35, pH:7.46, temp:13.9, cond:0.239, turb:13.2, DO:4.98, redox:218.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:25, DTW:51.35, pH:7.46, temp:13.9, cond:0.241, turb:5.83, DO:4.85, redox:220.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 51.35 |
| Milliliters Purged (total)       | 4000  |
| pH                               | 7.46  |
| Conductivity (mS/cm)             | 0.241 |
| Turbidity (NTU)                  | 5.83  |
| Dissolved Oxygen (mg/L)          | 4.85  |
| Temperature (Degrees Celsius)    | 13.9  |
| Redox (ORP mV)                   | 220.9 |

parameters

@09:25, DTW:51.35, pH:7.46, temp:13.9, cond:0.241, turb:5.83, DO:4.85, redox:220.9

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:30, DTW:51.35, pH:7.46, temp:13.9, cond:0.243, turb:3.52, DO:4.86, redox:221.3**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 09:30                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 51.35                                                                              |
| Milliliters Purged (total)       | 5000                                                                               |
| pH                               | 7.46                                                                               |
| Conductivity (mS/cm)             | 0.243                                                                              |
| Turbidity (NTU)                  | 3.52                                                                               |
| Dissolved Oxygen (mg/L)          | 4.86                                                                               |
| Temperature (Degrees Celsius)    | 13.9                                                                               |
| Redox (ORP mV)                   | 221.3                                                                              |
| parameters                       | @09:30, DTW:51.35, pH:7.46, temp:13.9, cond:0.243, turb:3.52, DO:4.86, redox:221.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 09:40 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 09:35 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |                      |
|--------------------------|----------------------|
| Condition of Well        | Good                 |
| Well Locked at Arrival   | No                   |
| Well Locked at Departure | No                   |
| Comments                 | Unable to lock well. |

Signature

A handwritten signature in black ink, appearing to be 'And m h'.

Signed 2019-06-13 13:07:35 UTC

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## 2019-06-05, MW-19-107, MW-19-107

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 13:24:32 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-05 14:02:45 EDT by Christine Gregg |
| Location                                                                                          | 42.74543728, -84.58653736                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-05                                 |
| Well Identification                                                                               | MW-19-107                                  |
| Well ID                                                                                           | MW-19-107                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Cloudy, 75F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 12.64         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 29.92         |
| Water Column                                                                                                                                                                                                                                           | 17.28         |
| Gallons in Well                                                                                                                                                                                                                                        | 2.81          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 27.42         |
| Purge Start                                                                                                                                                                                                                                            | 13:35         |

### @13:40, DTW:12.77, pH:6.8, temp:12.4, cond:0.92, turb:5.82, DO:0.19, redox:6.8

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 13:40                                                                          |
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 12.77                                                                          |
| Milliliters Purged (total)    | 1000                                                                           |
| pH                            | 6.8                                                                            |
| Conductivity (mS/cm)          | 0.92                                                                           |
| Turbidity (NTU)               | 5.82                                                                           |
| Dissolved Oxygen (mg/L)       | 0.19                                                                           |
| Temperature (Degrees Celsius) | 12.4                                                                           |
| Redox (ORP mV)                | 6.8                                                                            |
| parameters                    | @13:40, DTW:12.77, pH:6.8, temp:12.4, cond:0.92, turb:5.82, DO:0.19, redox:6.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit



**@13:45, DTW:12.97, pH:6.8, temp:12.3, cond:0.92, turb:4.89, DO:0.19, redox:6.4**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:45                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 12.97                                                                          |
| Milliliters Purged (total)       | 2000                                                                           |
| pH                               | 6.8                                                                            |
| Conductivity (mS/cm)             | 0.92                                                                           |
| Turbidity (NTU)                  | 4.89                                                                           |
| Dissolved Oxygen (mg/L)          | 0.19                                                                           |
| Temperature (Degrees Celsius)    | 12.3                                                                           |
| Redox (ORP mV)                   | 6.4                                                                            |
| parameters                       | @13:45, DTW:12.97, pH:6.8, temp:12.3, cond:0.92, turb:4.89, DO:0.19, redox:6.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:50, DTW:12.99, pH:6.8, temp:12.6, cond:0.92, turb:3.6, DO:0.19, redox:5.5**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 13:50                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 12.99                                                                         |
| Milliliters Purged (total)       | 3000                                                                          |
| pH                               | 6.8                                                                           |
| Conductivity (mS/cm)             | 0.92                                                                          |
| Turbidity (NTU)                  | 3.6                                                                           |
| Dissolved Oxygen (mg/L)          | 0.19                                                                          |
| Temperature (Degrees Celsius)    | 12.6                                                                          |
| Redox (ORP mV)                   | 5.5                                                                           |
| parameters                       | @13:50, DTW:12.99, pH:6.8, temp:12.6, cond:0.92, turb:3.6, DO:0.19, redox:5.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:55, DTW:12.99, pH:6.8, temp:12.5, cond:0.92, turb:2.48, DO:0.16, redox:5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 12.99 |
| Milliliters Purged (total)       | 4000  |
| pH                               | 6.8   |
| Conductivity (mS/cm)             | 0.92  |
| Turbidity (NTU)                  | 2.48  |
| Dissolved Oxygen (mg/L)          | 0.16  |
| Temperature (Degrees Celsius)    | 12.5  |
| Redox (ORP mV)                   | 5     |

parameters

@13:55, DTW:12.99, pH:6.8, temp:12.5, cond:0.92, turb:2.48, DO:0.16, redox:5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:00, DTW:12.99, pH:6.8, temp:12.4, cond:0.92, turb:2.23, DO:0.16, redox:4.8**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:00                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 12.99                                                                          |
| Milliliters Purged (total)       | 5000                                                                           |
| pH                               | 6.8                                                                            |
| Conductivity (mS/cm)             | 0.92                                                                           |
| Turbidity (NTU)                  | 2.23                                                                           |
| Dissolved Oxygen (mg/L)          | 0.16                                                                           |
| Temperature (Degrees Celsius)    | 12.4                                                                           |
| Redox (ORP mV)                   | 4.8                                                                            |
| parameters                       | @14:00, DTW:12.99, pH:6.8, temp:12.4, cond:0.92, turb:2.23, DO:0.16, redox:4.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 14:10 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:05 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |                                                        |
|--------------------------|--------------------------------------------------------|
| Condition of Well        | Good                                                   |
| Well Locked at Arrival   | No                                                     |
| Well Locked at Departure | No                                                     |
| Comments                 | Well will be locked tomorrow. New locks ordered today. |

Signature

A handwritten signature in black ink, appearing to be 'Amal' followed by a stylized flourish.

Signed 2019-06-05 17:26:14 UTC

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## 2019-12-03, MW-19-107

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-03 19:24:35 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-03 21:06:18 UTC by Austin Westhuis |
| Location                                                                                          | 42.7457567956697, -84.5868604817284        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-03                                 |
| Well ID                                                                                           | MW-19-107                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | NA                                         |
| Weather                                                                                           | Cloudy, windy, 30F                         |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 13.77         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 29.85         |
| Water Column                                                                                                                                                                                                                                              | 16.08         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.61          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 27.35         |
| Purge Start                                                                                                                                                                                                                                               | 14:25         |

### @14:30, DTW:14.35, pH:6.77, temp:12.1, cond:0.74, turb:2.85, DO:0.77, redox:10.3

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 14:30                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 14.35                                                                            |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 6.77                                                                             |
| Conductivity (mS/cm)          | 0.74                                                                             |
| Turbidity (NTU)               | 2.85                                                                             |
| Dissolved Oxygen (mg/L)       | 0.77                                                                             |
| Temperature (Degrees Celsius) | 12.1                                                                             |
| Redox (ORP mV)                | 10.3                                                                             |
| parameters                    | @14:30, DTW:14.35, pH:6.77, temp:12.1, cond:0.74, turb:2.85, DO:0.77, redox:10.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:35, DTW:14.37, pH:6.77, temp:12.1, cond:0.74, turb:2.52, DO:0.72, redox:10.3

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 14.37                                                                            |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 6.77                                                                             |
| Conductivity (mS/cm)             | 0.74                                                                             |
| Turbidity (NTU)                  | 2.52                                                                             |
| Dissolved Oxygen (mg/L)          | 0.72                                                                             |
| Temperature (Degrees Celsius)    | 12.1                                                                             |
| Redox (ORP mV)                   | 10.3                                                                             |
| parameters                       | @14:35, DTW:14.37, pH:6.77, temp:12.1, cond:0.74, turb:2.52, DO:0.72, redox:10.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:40, DTW:14.37, pH:6.77, temp:12, cond:0.73, turb:2.02, DO:0.68, redox:10.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:40                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 14.37                                                                          |
| pH                               | 6.77                                                                           |
| Conductivity (mS/cm)             | 0.73                                                                           |
| Turbidity (NTU)                  | 2.02                                                                           |
| Dissolved Oxygen (mg/L)          | 0.68                                                                           |
| Temperature (Degrees Celsius)    | 12                                                                             |
| Redox (ORP mV)                   | 10.1                                                                           |
| parameters                       | @14:40, DTW:14.37, pH:6.77, temp:12, cond:0.73, turb:2.02, DO:0.68, redox:10.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:45, DTW:14.37, pH:6.78, temp:12, cond:0.73, turb:2.04, DO:0.67, redox:9.9**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:45                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 14.37                                                                         |
| Milliliters Purged (total)       | 4000                                                                          |
| pH                               | 6.78                                                                          |
| Conductivity (mS/cm)             | 0.73                                                                          |
| Turbidity (NTU)                  | 2.04                                                                          |
| Dissolved Oxygen (mg/L)          | 0.67                                                                          |
| Temperature (Degrees Celsius)    | 12                                                                            |
| Redox (ORP mV)                   | 9.9                                                                           |
| parameters                       | @14:45, DTW:14.37, pH:6.78, temp:12, cond:0.73, turb:2.04, DO:0.67, redox:9.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:50, DTW:14.37, pH:6.78, temp:12, cond:0.73, turb:1.73, DO:0.66, redox:9.7**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:50                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 14.37                                                                         |
| Milliliters Purged (total)       | 5000                                                                          |
| pH                               | 6.78                                                                          |
| Conductivity (mS/cm)             | 0.73                                                                          |
| Turbidity (NTU)                  | 1.73                                                                          |
| Dissolved Oxygen (mg/L)          | 0.66                                                                          |
| Temperature (Degrees Celsius)    | 12                                                                            |
| Redox (ORP mV)                   | 9.7                                                                           |
| parameters                       | @14:50, DTW:14.37, pH:6.78, temp:12, cond:0.73, turb:1.73, DO:0.66, redox:9.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:55, DTW:14.37, pH:6.78, temp:12, cond:0.73, turb:1.59, DO:0.66, redox:9.6**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:55                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 14.37                                                                         |
| Milliliters Purged (total)       | 6000                                                                          |
| pH                               | 6.78                                                                          |
| Conductivity (mS/cm)             | 0.73                                                                          |
| Turbidity (NTU)                  | 1.59                                                                          |
| Dissolved Oxygen (mg/L)          | 0.66                                                                          |
| Temperature (Degrees Celsius)    | 12                                                                            |
| Redox (ORP mV)                   | 9.6                                                                           |
| parameters                       | @14:55, DTW:14.37, pH:6.78, temp:12, cond:0.73, turb:1.59, DO:0.66, redox:9.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 15:05 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:00 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                     |                |
|---------------------|----------------|
| Constituent Sampled | PFAS           |
| Container Type      | 250 mL Plastic |

|                      |      |
|----------------------|------|
| Number of Containers | 2    |
| Preservative         | None |

### Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to read "Andrew" followed by a stylized monogram or initials.

Signed 2019-12-03 19:25:57 UTC

## 2019-06-05, MW-19-108, MW-19-108

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 11:08:10 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-05 11:51:47 EDT by Christine Gregg |
| Location                                                                                          | 42.7450318, -84.58641222                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-05                                 |
| Well Identification                                                                               | MW-19-108                                  |
| Well ID                                                                                           | MW-19-108                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Cloudy, 75F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 13.41         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 30.14         |
| Water Column                                                                                                                                                                                                                                           | 16.73         |
| Gallons in Well                                                                                                                                                                                                                                        | 2.72          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 27.64         |
| Purge Start                                                                                                                                                                                                                                            | 11:30         |

### @11:35, DTW:13.45, pH:6.69, temp:12.6, cond:1.43, turb:6.38, DO:1.19, redox:121.7

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 11:35                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 13.45                                                                             |
| Milliliters Purged (total)    | 1000                                                                              |
| pH                            | 6.69                                                                              |
| Conductivity (mS/cm)          | 1.43                                                                              |
| Turbidity (NTU)               | 6.38                                                                              |
| Dissolved Oxygen (mg/L)       | 1.19                                                                              |
| Temperature (Degrees Celsius) | 12.6                                                                              |
| Redox (ORP mV)                | 121.7                                                                             |
| parameters                    | @11:35, DTW:13.45, pH:6.69, temp:12.6, cond:1.43, turb:6.38, DO:1.19, redox:121.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit



**@11:40, DTW:13.45, pH:6.7, temp:12.2, cond:1.39, turb:3.04, DO:0.26, redox:93.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 13.45                                                                           |
| Milliliters Purged (total)       | 2000                                                                            |
| pH                               | 6.7                                                                             |
| Conductivity (mS/cm)             | 1.39                                                                            |
| Turbidity (NTU)                  | 3.04                                                                            |
| Dissolved Oxygen (mg/L)          | 0.26                                                                            |
| Temperature (Degrees Celsius)    | 12.2                                                                            |
| Redox (ORP mV)                   | 93.1                                                                            |
| parameters                       | @11:40, DTW:13.45, pH:6.7, temp:12.2, cond:1.39, turb:3.04, DO:0.26, redox:93.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:45, DTW:13.45, pH:6.69, temp:12.2, cond:1.39, turb:2.47, DO:0.23, redox:91.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 13.45                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 6.69                                                                             |
| Conductivity (mS/cm)             | 1.39                                                                             |
| Turbidity (NTU)                  | 2.47                                                                             |
| Dissolved Oxygen (mg/L)          | 0.23                                                                             |
| Temperature (Degrees Celsius)    | 12.2                                                                             |
| Redox (ORP mV)                   | 91.3                                                                             |
| parameters                       | @11:45, DTW:13.45, pH:6.69, temp:12.2, cond:1.39, turb:2.47, DO:0.23, redox:91.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:50, DTW:13.45, pH:6.69, temp:12.3, cond:1.39, turb:2.26, DO:0.21, redox:88.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 13.45 |
| Milliliters Purged (total)       | 4000  |
| pH                               | 6.69  |
| Conductivity (mS/cm)             | 1.39  |
| Turbidity (NTU)                  | 2.26  |
| Dissolved Oxygen (mg/L)          | 0.21  |
| Temperature (Degrees Celsius)    | 12.3  |
| Redox (ORP mV)                   | 88.4  |

parameters

@11:50, DTW:13.45, pH:6.69, temp:12.3, cond:1.39, turb:2.26, DO:0.21, redox:88.4

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 12:00 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 11:55 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                |                |
|----------------|----------------|
| Container Type | 250 mL Plastic |
|----------------|----------------|

|                      |   |
|----------------------|---|
| Number of Containers | 2 |
|----------------------|---|

|              |      |
|--------------|------|
| Preservative | None |
|--------------|------|

### Well Information

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |    |
|------------------------|----|
| Well Locked at Arrival | No |
|------------------------|----|

|                          |    |
|--------------------------|----|
| Well Locked at Departure | No |
|--------------------------|----|

|          |                                        |
|----------|----------------------------------------|
| Comments | Will lock tomorrow. New locks ordered. |
|----------|----------------------------------------|

Signature

A handwritten signature in black ink, appearing to be 'Andrew' or similar, written in a cursive style.

Signed 2019-06-05 15:10:00 UTC

## 2019-12-03, MW-19-108

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-03 17:32:33 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-03 18:44:11 UTC by Austin Westhuis |
| Location                                                                                          | 42.7451497363325, -84.5864885766847        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-03                                 |
| Well ID                                                                                           | MW-19-108                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | NA                                         |
| Weather                                                                                           | Cloudy, windy, 30F                         |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 17.38         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 30.05         |
| Water Column                                                                                                                                                                                                                                              | 12.67         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.06          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 27.55         |
| Purge Start                                                                                                                                                                                                                                               | 12:30         |

### @12:35, DTW:17.46, pH:6.67, temp:12.1, cond:1.12, turb:2.54, DO:2.6, redox:42.2

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 12:35                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 17.46                                                                           |
| Milliliters Purged (total)    | 1000                                                                            |
| pH                            | 6.67                                                                            |
| Conductivity (mS/cm)          | 1.12                                                                            |
| Turbidity (NTU)               | 2.54                                                                            |
| Dissolved Oxygen (mg/L)       | 2.6                                                                             |
| Temperature (Degrees Celsius) | 12.1                                                                            |
| Redox (ORP mV)                | 42.2                                                                            |
| parameters                    | @12:35, DTW:17.46, pH:6.67, temp:12.1, cond:1.12, turb:2.54, DO:2.6, redox:42.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:40, DTW:17.46, pH:6.67, temp:12, cond:1.12, turb:2.21, DO:2.1, redox:41.9

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 12:40                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 17.46                                                                         |
| Milliliters Purged (total)       | 2000                                                                          |
| pH                               | 6.67                                                                          |
| Conductivity (mS/cm)             | 1.12                                                                          |
| Turbidity (NTU)                  | 2.21                                                                          |
| Dissolved Oxygen (mg/L)          | 2.1                                                                           |
| Temperature (Degrees Celsius)    | 12                                                                            |
| Redox (ORP mV)                   | 41.9                                                                          |
| parameters                       | @12:40, DTW:17.46, pH:6.67, temp:12, cond:1.12, turb:2.21, DO:2.1, redox:41.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:45, DTW:17.46, pH:6.66, temp:11.9, cond:1.12, turb:1.9, DO:1.97, redox:42.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 17.46                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 6.66                                                                            |
| Conductivity (mS/cm)             | 1.12                                                                            |
| Turbidity (NTU)                  | 1.9                                                                             |
| Dissolved Oxygen (mg/L)          | 1.97                                                                            |
| Temperature (Degrees Celsius)    | 11.9                                                                            |
| Redox (ORP mV)                   | 42.8                                                                            |
| parameters                       | @12:45, DTW:17.46, pH:6.66, temp:11.9, cond:1.12, turb:1.9, DO:1.97, redox:42.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:50, DTW:17.46, pH:6.66, temp:11.7, cond:1.11, turb:1.71, DO:2.11, redox:43.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:50                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 17.46                                                                            |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 6.66                                                                             |
| Conductivity (mS/cm)             | 1.11                                                                             |
| Turbidity (NTU)                  | 1.71                                                                             |
| Dissolved Oxygen (mg/L)          | 2.11                                                                             |
| Temperature (Degrees Celsius)    | 11.7                                                                             |
| Redox (ORP mV)                   | 43.4                                                                             |
| parameters                       | @12:50, DTW:17.46, pH:6.66, temp:11.7, cond:1.11, turb:1.71, DO:2.11, redox:43.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 13:00 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 12:55 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                |                |
|----------------|----------------|
| Container Type | 250 mL Plastic |
|----------------|----------------|

|                      |   |
|----------------------|---|
| Number of Containers | 2 |
|----------------------|---|

|              |      |
|--------------|------|
| Preservative | None |
|--------------|------|

### Well Information

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature

A handwritten signature in black ink, appearing to be 'Andrew L.' or similar, written in a cursive style.

Signed 2019-12-03 17:34:04 UTC

## 2019-06-04, MW-19-109, MW-19-109

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-04 14:13:30 EDT by Donald Richmond |
| Updated                                                                                           | 2019-06-04 14:59:11 EDT by Christine Gregg |
| Location                                                                                          | 42.74209453, -84.58804401                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-04                                 |
| Well Identification                                                                               | MW-19-109                                  |
| Well ID                                                                                           | MW-19-109                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Overcast slight winds                      |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 69.01         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder       |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                | 14:08         |

### @14:14, DTW:69.01, pH:6.46, temp:17.6, cond:3.19, turb:61, DO:0.49, redox:-51.8

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 14:14                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 69.01                                                                           |
| pH                            | 6.46                                                                            |
| Conductivity (mS/cm)          | 3.19                                                                            |
| Turbidity (NTU)               | 61                                                                              |
| Dissolved Oxygen (mg/L)       | 0.49                                                                            |
| Temperature (Degrees Celsius) | 17.6                                                                            |
| Redox (ORP mV)                | -51.8                                                                           |
| parameters                    | @14:14, DTW:69.01, pH:6.46, temp:17.6, cond:3.19, turb:61, DO:0.49, redox:-51.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:19, DTW:70.7, pH:6.44, temp:16.7, cond:3.19, turb:44, DO:0.33, redox:-53.6

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:19 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 70.7  |
| pH                               | 6.44  |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 3.19                                                                           |
| Turbidity (NTU)               | 44                                                                             |
| Dissolved Oxygen (mg/L)       | 0.33                                                                           |
| Temperature (Degrees Celsius) | 16.7                                                                           |
| Redox (ORP mV)                | -53.6                                                                          |
| parameters                    | @14:19, DTW:70.7, pH:6.44, temp:16.7, cond:3.19, turb:44, DO:0.33, redox:-53.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:24, DTW:70.7, pH:, temp:, cond:, turb:, DO:, redox:**

|                                  |                                                         |
|----------------------------------|---------------------------------------------------------|
| Reading Time                     | 14:24                                                   |
| Minutes Elapsed between readings | 5                                                       |
| Rate (mL/min)                    | 200                                                     |
| Depth to Water (ft)              | 70.7                                                    |
| parameters                       | @14:24, DTW:70.7, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:26, DTW:70.7, pH:6.44, temp:16.6, cond:3.28, turb:20.5, DO:0.24, redox:-59.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:26                                                                            |
| Minutes Elapsed between readings | 2                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 70.7                                                                             |
| pH                               | 6.44                                                                             |
| Conductivity (mS/cm)             | 3.28                                                                             |
| Turbidity (NTU)                  | 20.5                                                                             |
| Dissolved Oxygen (mg/L)          | 0.24                                                                             |
| Temperature (Degrees Celsius)    | 16.6                                                                             |
| Redox (ORP mV)                   | -59.8                                                                            |
| parameters                       | @14:26, DTW:70.7, pH:6.44, temp:16.6, cond:3.28, turb:20.5, DO:0.24, redox:-59.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:34, DTW:69.01, pH:6.44, temp:16.7, cond:3.29, turb:17.5, DO:0.21, redox:-62.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:34 |
| Minutes Elapsed between readings | 8     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 69.01 |
| pH                               | 6.44  |
| Conductivity (mS/cm)             | 3.29  |
| Turbidity (NTU)                  | 17.5  |
| Dissolved Oxygen (mg/L)          | 0.21  |
| Temperature (Degrees Celsius)    | 16.7  |
| Redox (ORP mV)                   | -62.5 |

parameters

@14:34, DTW:69.01, pH:6.44, temp:16.7, cond:3.29, turb:17.5, DO:0.21, redox:-62.5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:39, DTW:69.01, pH:6.44, temp:16.4, cond:3.27, turb:5.03, DO:0.2, redox:-80.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:39 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 69.01 |
| pH                               | 6.44  |
| Conductivity (mS/cm)             | 3.27  |
| Turbidity (NTU)                  | 5.03  |
| Dissolved Oxygen (mg/L)          | 0.2   |
| Temperature (Degrees Celsius)    | 16.4  |
| Redox (ORP mV)                   | -80.9 |

parameters

@14:39, DTW:69.01, pH:6.44, temp:16.4, cond:3.27, turb:5.03, DO:0.2, redox:-80.9

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:43, DTW:69.01, pH:6.44, temp:16.5, cond:3.28, turb:7.57, DO:0.2, redox:-62.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:43 |
| Minutes Elapsed between readings | 4     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 69.01 |
| pH                               | 6.44  |
| Conductivity (mS/cm)             | 3.28  |
| Turbidity (NTU)                  | 7.57  |
| Dissolved Oxygen (mg/L)          | 0.2   |
| Temperature (Degrees Celsius)    | 16.5  |
| Redox (ORP mV)                   | -62.6 |

parameters

@14:43, DTW:69.01, pH:6.44, temp:16.5, cond:3.28, turb:7.57, DO:0.2, redox:-62.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:47, DTW:69.01, pH:6.44, temp:17.1, cond:3.29, turb:8.9, DO:0.21, redox:-62.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:47 |
| Minutes Elapsed between readings | 4     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 69.01 |
| pH                               | 6.44  |
| Conductivity (mS/cm)             | 3.29  |
| Turbidity (NTU)                  | 8.9   |
| Dissolved Oxygen (mg/L)          | 0.21  |
| Temperature (Degrees Celsius)    | 17.1  |



|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -62.9                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @14:47, DTW:69.01, pH:6.44, temp:17.1, cond:3.29, turb:8.9, DO:0.21, redox:-62.9 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |

### @14:50, DTW:69.01, pH:6.44, temp:16.8, cond:3.31, turb:5.69, DO:0.2, redox:-63.8

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:50                                                                            |
| Minutes Elapsed between readings | 3                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 69.01                                                                            |
| pH                               | 6.44                                                                             |
| Conductivity (mS/cm)             | 3.31                                                                             |
| Turbidity (NTU)                  | 5.69                                                                             |
| Dissolved Oxygen (mg/L)          | 0.2                                                                              |
| Temperature (Degrees Celsius)    | 16.8                                                                             |
| Redox (ORP mV)                   | -63.8                                                                            |
| parameters                       | @14:50, DTW:69.01, pH:6.44, temp:16.8, cond:3.31, turb:5.69, DO:0.2, redox:-63.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 14:50   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 2.5     |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:50 |
| Color         | Clear |
| Notable odors | None  |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to be 'D. R.' with a stylized flourish.

Signed 2019-06-04 18:31:00 UTC

---

## 2019-06-20, MW-19-109

|                                                                                                   |                                          |
|---------------------------------------------------------------------------------------------------|------------------------------------------|
| Created                                                                                           | 2020-04-02 18:43:07 UTC by Caitlin Cisco |
| Updated                                                                                           | 2020-04-02 18:43:07 UTC by Caitlin Cisco |
| Location                                                                                          | ,                                        |
| Project Number                                                                                    | 30006870                                 |
| Project Name / Location                                                                           | RACER Lansing, MI                        |
| Sampler Name                                                                                      | Caitlin Cisco                            |
| Date                                                                                              | 2019-06-20                               |
| Well ID                                                                                           | MW-19-109                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                      |
| Weather                                                                                           | Rain, 57 deg F                           |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 66.00         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 94.28         |
| Water Column                                                                                                                                                                                                                                                 | 28.28         |
| Gallons in Well                                                                                                                                                                                                                                              | 4.6           |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 80.0          |

### @09:45, DTW:64.7, pH:6.6, temp:15.2, cond:1.31, turb:1000, DO:6.61, redox:68.8

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 09:45                                                                          |
| Rate (mL/min)                 | 150                                                                            |
| Depth to Water (ft)           | 64.70                                                                          |
| pH                            | 6.60                                                                           |
| Conductivity (mS/cm)          | 1.31                                                                           |
| Turbidity (NTU)               | 1000                                                                           |
| Dissolved Oxygen (mg/L)       | 6.61                                                                           |
| Temperature (Degrees Celsius) | 15.2                                                                           |
| Redox (ORP mV)                | 68.8                                                                           |
| parameters                    | @09:45, DTW:64.7, pH:6.6, temp:15.2, cond:1.31, turb:1000, DO:6.61, redox:68.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:50, DTW:63.48, pH:6.7, temp:15.1, cond:1.32, turb:1000, DO:5.96, redox:32.6

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Depth to Water (ft)           | 63.48                                                                           |
| pH                            | 6.70                                                                            |
| Conductivity (mS/cm)          | 1.32                                                                            |
| Turbidity (NTU)               | 1000                                                                            |
| Dissolved Oxygen (mg/L)       | 5.96                                                                            |
| Temperature (Degrees Celsius) | 15.10                                                                           |
| Redox (ORP mV)                | 32.60                                                                           |
| parameters                    | @09:50, DTW:63.48, pH:6.7, temp:15.1, cond:1.32, turb:1000, DO:5.96, redox:32.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@09:55, DTW:62.17, pH:6.73, temp:15.1, cond:1.32, turb:1000, DO:5.35, redox:15.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 62.17                                                                            |
| pH                               | 6.73                                                                             |
| Conductivity (mS/cm)             | 1.32                                                                             |
| Turbidity (NTU)                  | 1000                                                                             |
| Dissolved Oxygen (mg/L)          | 5.35                                                                             |
| Temperature (Degrees Celsius)    | 15.10                                                                            |
| Redox (ORP mV)                   | 15.6                                                                             |
| parameters                       | @09:55, DTW:62.17, pH:6.73, temp:15.1, cond:1.32, turb:1000, DO:5.35, redox:15.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@10:00, DTW:61.89, pH:6.73, temp:15, cond:1.32, turb:1000, DO:5.15, redox:9.9**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 10:00                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 150                                                                           |
| Depth to Water (ft)              | 61.89                                                                         |
| pH                               | 6.73                                                                          |
| Conductivity (mS/cm)             | 1.32                                                                          |
| Turbidity (NTU)                  | 1000                                                                          |
| Dissolved Oxygen (mg/L)          | 5.15                                                                          |
| Temperature (Degrees Celsius)    | 15                                                                            |
| Redox (ORP mV)                   | 9.9                                                                           |
| parameters                       | @10:00, DTW:61.89, pH:6.73, temp:15, cond:1.32, turb:1000, DO:5.15, redox:9.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@10:05, DTW:61.57, pH:6.74, temp:15.3, cond:1.33, turb:1000, DO:4.98, redox:-5.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:05 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 150                                                                              |
| Depth to Water (ft)           | 61.57                                                                            |
| pH                            | 6.74                                                                             |
| Conductivity (mS/cm)          | 1.33                                                                             |
| Turbidity (NTU)               | 1000                                                                             |
| Dissolved Oxygen (mg/L)       | 4.98                                                                             |
| Temperature (Degrees Celsius) | 15.3                                                                             |
| Redox (ORP mV)                | -5.6                                                                             |
| parameters                    | @10:05, DTW:61.57, pH:6.74, temp:15.3, cond:1.33, turb:1000, DO:4.98, redox:-5.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:10, DTW:61.42, pH:6.72, temp:15.3, cond:1.31, turb:1000, DO:4.82, redox:-12.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 61.42                                                                             |
| pH                               | 6.72                                                                              |
| Conductivity (mS/cm)             | 1.31                                                                              |
| Turbidity (NTU)                  | 1000                                                                              |
| Dissolved Oxygen (mg/L)          | 4.82                                                                              |
| Temperature (Degrees Celsius)    | 15.3                                                                              |
| Redox (ORP mV)                   | -12.40                                                                            |
| parameters                       | @10:10, DTW:61.42, pH:6.72, temp:15.3, cond:1.31, turb:1000, DO:4.82, redox:-12.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:15, DTW:61.08, pH:6.71, temp:15.4, cond:1.31, turb:987, DO:4.8, redox:-17.6**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 61.08                                                                           |
| pH                               | 6.71                                                                            |
| Conductivity (mS/cm)             | 1.31                                                                            |
| Turbidity (NTU)                  | 987                                                                             |
| Dissolved Oxygen (mg/L)          | 4.80                                                                            |
| Temperature (Degrees Celsius)    | 15.4                                                                            |
| Redox (ORP mV)                   | -17.6                                                                           |
| parameters                       | @10:15, DTW:61.08, pH:6.71, temp:15.4, cond:1.31, turb:987, DO:4.8, redox:-17.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:20, DTW:61, pH:6.71, temp:15.4, cond:1.31, turb:960, DO:4.4, redox:-22.6**

|              |       |
|--------------|-------|
| Reading Time | 10:20 |
|--------------|-------|

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 150                                                                          |
| Depth to Water (ft)              | 61.00                                                                        |
| pH                               | 6.71                                                                         |
| Conductivity (mS/cm)             | 1.31                                                                         |
| Turbidity (NTU)                  | 960                                                                          |
| Dissolved Oxygen (mg/L)          | 4.40                                                                         |
| Temperature (Degrees Celsius)    | 15.40                                                                        |
| Redox (ORP mV)                   | -22.6                                                                        |
| parameters                       | @10:20, DTW:61, pH:6.71, temp:15.4, cond:1.31, turb:960, DO:4.4, redox:-22.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:25, DTW:60.32, pH:6.7, temp:15.5, cond:1.32, turb:937, DO:4.1, redox:-25.8**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 10:25                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 150                                                                            |
| Depth to Water (ft)              | 60.32                                                                          |
| pH                               | 6.70                                                                           |
| Conductivity (mS/cm)             | 1.32                                                                           |
| Turbidity (NTU)                  | 937                                                                            |
| Dissolved Oxygen (mg/L)          | 4.10                                                                           |
| Temperature (Degrees Celsius)    | 15.5                                                                           |
| Redox (ORP mV)                   | -25.8                                                                          |
| parameters                       | @10:25, DTW:60.32, pH:6.7, temp:15.5, cond:1.32, turb:937, DO:4.1, redox:-25.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:30, DTW:60.08, pH:6.71, temp:15.5, cond:1.32, turb:889, DO:4.04, redox:-26.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 60.08                                                                            |
| pH                               | 6.71                                                                             |
| Conductivity (mS/cm)             | 1.32                                                                             |
| Turbidity (NTU)                  | 889                                                                              |
| Dissolved Oxygen (mg/L)          | 4.04                                                                             |
| Temperature (Degrees Celsius)    | 15.5                                                                             |
| Redox (ORP mV)                   | -26.80                                                                           |
| parameters                       | @10:30, DTW:60.08, pH:6.71, temp:15.5, cond:1.32, turb:889, DO:4.04, redox:-26.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:35, DTW:60, pH:6.72, temp:15.3, cond:1.31, turb:705, DO:4.06, redox:-27**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 10:35                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 150                                                                         |
| Depth to Water (ft)              | 60.00                                                                       |
| pH                               | 6.72                                                                        |
| Conductivity (mS/cm)             | 1.31                                                                        |
| Turbidity (NTU)                  | 705                                                                         |
| Dissolved Oxygen (mg/L)          | 4.06                                                                        |
| Temperature (Degrees Celsius)    | 15.3                                                                        |
| Redox (ORP mV)                   | -27                                                                         |
| parameters                       | @10:35, DTW:60, pH:6.72, temp:15.3, cond:1.31, turb:705, DO:4.06, redox:-27 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:40, DTW:59.51, pH:6.73, temp:15.5, cond:1.32, turb:686, DO:3.99, redox:-26.6

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 59.51                                                                            |
| pH                               | 6.73                                                                             |
| Conductivity (mS/cm)             | 1.32                                                                             |
| Turbidity (NTU)                  | 686                                                                              |
| Dissolved Oxygen (mg/L)          | 3.99                                                                             |
| Temperature (Degrees Celsius)    | 15.5                                                                             |
| Redox (ORP mV)                   | -26.6                                                                            |
| parameters                       | @10:40, DTW:59.51, pH:6.73, temp:15.5, cond:1.32, turb:686, DO:3.99, redox:-26.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 10:40   |
| Total Volume Measured (units) | Gallons |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:40 |
| Color         | Gray  |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|               |           |
|---------------|-----------|
| Well Location | MW-19-109 |
|---------------|-----------|

Signature

*Caith O'Neill*

Signed 2020-04-02 18:42:44 UTC

---



## 2019-08-27, MW-19-109, MW-19-109

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-08-27 15:16:00 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-08-27 15:45:20 EDT by Christine Gregg |
| Location                                                                                          | 42.74212588, -84.58822221                  |
| Project Number                                                                                    | 12345678.9876                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-08-27                                 |
| Well Identification                                                                               | MW-19-109                                  |
| Well ID                                                                                           | MW-19-109                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Partly Cloudy, Humid, Breezy, 70's         |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 54.11         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 86.8          |
| Water Column                                                                                                                                                                                                                                              | 32.69         |
| Gallons in Well                                                                                                                                                                                                                                           | 5.31          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 84            |
| Purge Start                                                                                                                                                                                                                                               | 15:15         |

### @15:15, DTW:54.11, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 15:15                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 54.11                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @15:15, DTW:54.11, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:20, DTW:54.44, pH:6.9, temp:20.7, cond:1.89, turb:56.4, DO:7.49, redox:67.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 54.44 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.9   |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.89                                                                            |
| Turbidity (NTU)               | 56.4                                                                            |
| Dissolved Oxygen (mg/L)       | 7.49                                                                            |
| Temperature (Degrees Celsius) | 20.7                                                                            |
| Redox (ORP mV)                | 67.1                                                                            |
| parameters                    | @15:20, DTW:54.44, pH:6.9, temp:20.7, cond:1.89, turb:56.4, DO:7.49, redox:67.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:25, DTW:54.44, pH:6.93, temp:20.1, cond:1.89, turb:117, DO:7.69, redox:68.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 54.44                                                                           |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 6.93                                                                            |
| Conductivity (mS/cm)             | 1.89                                                                            |
| Turbidity (NTU)                  | 117                                                                             |
| Dissolved Oxygen (mg/L)          | 7.69                                                                            |
| Temperature (Degrees Celsius)    | 20.1                                                                            |
| Redox (ORP mV)                   | 68.1                                                                            |
| parameters                       | @15:25, DTW:54.44, pH:6.93, temp:20.1, cond:1.89, turb:117, DO:7.69, redox:68.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:30, DTW:54.44, pH:7.01, temp:20.2, cond:1.89, turb:91.5, DO:7.62, redox:69.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 54.44                                                                            |
| Milliliters Purged (total)       | 1500                                                                             |
| pH                               | 7.01                                                                             |
| Conductivity (mS/cm)             | 1.89                                                                             |
| Turbidity (NTU)                  | 91.5                                                                             |
| Dissolved Oxygen (mg/L)          | 7.62                                                                             |
| Temperature (Degrees Celsius)    | 20.2                                                                             |
| Redox (ORP mV)                   | 69.2                                                                             |
| parameters                       | @15:30, DTW:54.44, pH:7.01, temp:20.2, cond:1.89, turb:91.5, DO:7.62, redox:69.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:35, DTW:54.44, pH:7, temp:19.4, cond:1.89, turb:58.6, DO:7.76, redox:73.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:35 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                           |
| Depth to Water (ft)           | 54.44                                                                         |
| Milliliters Purged (total)    | 2000                                                                          |
| pH                            | 7                                                                             |
| Conductivity (mS/cm)          | 1.89                                                                          |
| Turbidity (NTU)               | 58.6                                                                          |
| Dissolved Oxygen (mg/L)       | 7.76                                                                          |
| Temperature (Degrees Celsius) | 19.4                                                                          |
| Redox (ORP mV)                | 73.7                                                                          |
| parameters                    | @15:35, DTW:54.44, pH:7, temp:19.4, cond:1.89, turb:58.6, DO:7.76, redox:73.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:40, DTW:54.44, pH:7.01, temp:19.4, cond:1.89, turb:41.1, DO:7.93, redox:71.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 54.44                                                                            |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 7.01                                                                             |
| Conductivity (mS/cm)             | 1.89                                                                             |
| Turbidity (NTU)                  | 41.1                                                                             |
| Dissolved Oxygen (mg/L)          | 7.93                                                                             |
| Temperature (Degrees Celsius)    | 19.4                                                                             |
| Redox (ORP mV)                   | 71.5                                                                             |
| parameters                       | @15:40, DTW:54.44, pH:7.01, temp:19.4, cond:1.89, turb:41.1, DO:7.93, redox:71.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:45, DTW:54.44, pH:7.01, temp:19.1, cond:1.89, turb:40.8, DO:8.05, redox:71.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 54.44                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.01                                                                             |
| Conductivity (mS/cm)             | 1.89                                                                             |
| Turbidity (NTU)                  | 40.8                                                                             |
| Dissolved Oxygen (mg/L)          | 8.05                                                                             |
| Temperature (Degrees Celsius)    | 19.1                                                                             |
| Redox (ORP mV)                   | 71.4                                                                             |
| parameters                       | @15:45, DTW:54.44, pH:7.01, temp:19.1, cond:1.89, turb:40.8, DO:8.05, redox:71.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:50, DTW:54.44, pH:7.01, temp:19.2, cond:1.89, turb:39.7, DO:7.87, redox:72.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:50                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 54.44                                                                            |
| Milliliters Purged (total)       | 3500                                                                             |
| pH                               | 7.01                                                                             |
| Conductivity (mS/cm)             | 1.89                                                                             |
| Turbidity (NTU)                  | 39.7                                                                             |
| Dissolved Oxygen (mg/L)          | 7.87                                                                             |
| Temperature (Degrees Celsius)    | 19.2                                                                             |
| Redox (ORP mV)                   | 72.1                                                                             |
| parameters                       | @15:50, DTW:54.44, pH:7.01, temp:19.2, cond:1.89, turb:39.7, DO:7.87, redox:72.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:55, DTW:54.44, pH:7.01, temp:19.2, cond:1.89, turb:38.7, DO:8.08, redox:72.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 54.44                                                                            |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 7.01                                                                             |
| Conductivity (mS/cm)             | 1.89                                                                             |
| Turbidity (NTU)                  | 38.7                                                                             |
| Dissolved Oxygen (mg/L)          | 8.08                                                                             |
| Temperature (Degrees Celsius)    | 19.2                                                                             |
| Redox (ORP mV)                   | 72.3                                                                             |
| parameters                       | @15:55, DTW:54.44, pH:7.01, temp:19.2, cond:1.89, turb:38.7, DO:8.08, redox:72.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 15:55       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 4000        |
| Well Volumes Purged           | 0.2         |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:55 |
| Color         | Clear |
| Notable odors | No    |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## P, TKN

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | P, TKN         |
| Container Type       | 250 mL Plastic |
| Number of Containers | 1              |
| Preservative         | H2SO4          |

## Nitrate

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | Nitrate        |
| Container Type       | 250 mL Plastic |
| Number of Containers | 1              |
| Preservative         | None           |

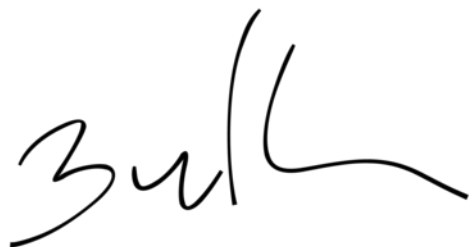
## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Photo of Well



Signature

A handwritten signature in black ink, appearing to be 'Zull' or similar, with a stylized, cursive-like font.

Signed 2019-08-27 19:19:43 UTC

---

## 2019-12-05, MW-19-109

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-05 16:14:31 UTC by Billy Cobern |
| Updated                                                                                           | 2019-12-05 16:50:42 UTC by Billy Cobern |
| Location                                                                                          | 42.7421194687884, -84.5882399753524     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-12-05                              |
| Well ID                                                                                           | MW-19-109                               |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Cloudy 30's                             |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 47.3          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 91.9          |
| Water Column                                                                                                                                                                                                                                               | 44.6          |
| Gallons in Well                                                                                                                                                                                                                                            | 7.25          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder       |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                   | 89.5          |
| Purge Start                                                                                                                                                                                                                                                | 11:05         |

### @11:05, DTW:47.3, pH:., temp:., cond:., turb:., DO:., redox:

|                            |                                                              |
|----------------------------|--------------------------------------------------------------|
| Reading Time               | 11:05                                                        |
| Rate (mL/min)              | 100                                                          |
| Depth to Water (ft)        | 47.3                                                         |
| Milliliters Purged (total) | 0                                                            |
| parameters                 | @11:05, DTW:47.3, pH:., temp:., cond:., turb:., DO:., redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:10, DTW:47.3, pH:7.11, temp:7.4, cond:2.17, turb:138, DO:11.54, redox:39.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 47.3  |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.11  |
| Conductivity (mS/cm)             | 2.17  |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Turbidity (NTU)               | 138                                                                            |
| Dissolved Oxygen (mg/L)       | 11.54                                                                          |
| Temperature (Degrees Celsius) | 7.4                                                                            |
| Redox (ORP mV)                | 39.1                                                                           |
| parameters                    | @11:10, DTW:47.3, pH:7.11, temp:7.4, cond:2.17, turb:138, DO:11.54, redox:39.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:15, DTW:47.3, pH:7.08, temp:6.9, cond:2.16, turb:136, DO:10.55, redox:42.8**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:15                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 47.3                                                                           |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 7.08                                                                           |
| Conductivity (mS/cm)             | 2.16                                                                           |
| Turbidity (NTU)                  | 136                                                                            |
| Dissolved Oxygen (mg/L)          | 10.55                                                                          |
| Temperature (Degrees Celsius)    | 6.9                                                                            |
| Redox (ORP mV)                   | 42.8                                                                           |
| parameters                       | @11:15, DTW:47.3, pH:7.08, temp:6.9, cond:2.16, turb:136, DO:10.55, redox:42.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:20, DTW:47.3, pH:7.07, temp:7.1, cond:2.14, turb:126, DO:10.3, redox:42.8**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 11:20                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 47.3                                                                          |
| Milliliters Purged (total)       | 1500                                                                          |
| pH                               | 7.07                                                                          |
| Conductivity (mS/cm)             | 2.14                                                                          |
| Turbidity (NTU)                  | 126                                                                           |
| Dissolved Oxygen (mg/L)          | 10.3                                                                          |
| Temperature (Degrees Celsius)    | 7.1                                                                           |
| Redox (ORP mV)                   | 42.8                                                                          |
| parameters                       | @11:20, DTW:47.3, pH:7.07, temp:7.1, cond:2.14, turb:126, DO:10.3, redox:42.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:25, DTW:47.3, pH:7.06, temp:7.4, cond:2.13, turb:157, DO:10.07, redox:42.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |



|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Depth to Water (ft)           | 47.3                                                                           |
| Milliliters Purged (total)    | 2000                                                                           |
| pH                            | 7.06                                                                           |
| Conductivity (mS/cm)          | 2.13                                                                           |
| Turbidity (NTU)               | 157                                                                            |
| Dissolved Oxygen (mg/L)       | 10.07                                                                          |
| Temperature (Degrees Celsius) | 7.4                                                                            |
| Redox (ORP mV)                | 42.5                                                                           |
| parameters                    | @11:25, DTW:47.3, pH:7.06, temp:7.4, cond:2.13, turb:157, DO:10.07, redox:42.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:30, DTW:47.3, pH:7.06, temp:7.7, cond:2.13, turb:121, DO:9.69, redox:42.2**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 11:30                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 47.3                                                                          |
| Milliliters Purged (total)       | 2500                                                                          |
| pH                               | 7.06                                                                          |
| Conductivity (mS/cm)             | 2.13                                                                          |
| Turbidity (NTU)                  | 121                                                                           |
| Dissolved Oxygen (mg/L)          | 9.69                                                                          |
| Temperature (Degrees Celsius)    | 7.7                                                                           |
| Redox (ORP mV)                   | 42.2                                                                          |
| parameters                       | @11:30, DTW:47.3, pH:7.06, temp:7.7, cond:2.13, turb:121, DO:9.69, redox:42.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:35, DTW:47.3, pH:7.03, temp:7.4, cond:2.13, turb:138, DO:9.24, redox:40.7**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 11:35                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 47.3                                                                          |
| Milliliters Purged (total)       | 3000                                                                          |
| pH                               | 7.03                                                                          |
| Conductivity (mS/cm)             | 2.13                                                                          |
| Turbidity (NTU)                  | 138                                                                           |
| Dissolved Oxygen (mg/L)          | 9.24                                                                          |
| Temperature (Degrees Celsius)    | 7.4                                                                           |
| Redox (ORP mV)                   | 40.7                                                                          |
| parameters                       | @11:35, DTW:47.3, pH:7.03, temp:7.4, cond:2.13, turb:138, DO:9.24, redox:40.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:40, DTW:47.3, pH:7.01, temp:7.6, cond:2.13, turb:172, DO:8.63, redox:37.6**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 11:40                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 47.3                                                                          |
| Milliliters Purged (total)       | 3500                                                                          |
| pH                               | 7.01                                                                          |
| Conductivity (mS/cm)             | 2.13                                                                          |
| Turbidity (NTU)                  | 172                                                                           |
| Dissolved Oxygen (mg/L)          | 8.63                                                                          |
| Temperature (Degrees Celsius)    | 7.6                                                                           |
| Redox (ORP mV)                   | 37.6                                                                          |
| parameters                       | @11:40, DTW:47.3, pH:7.01, temp:7.6, cond:2.13, turb:172, DO:8.63, redox:37.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:45, DTW:47.3, pH:6.97, temp:7.7, cond:2.11, turb:136, DO:8.12, redox:34.3**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 11:45                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 47.3                                                                          |
| Milliliters Purged (total)       | 4000                                                                          |
| pH                               | 6.97                                                                          |
| Conductivity (mS/cm)             | 2.11                                                                          |
| Turbidity (NTU)                  | 136                                                                           |
| Dissolved Oxygen (mg/L)          | 8.12                                                                          |
| Temperature (Degrees Celsius)    | 7.7                                                                           |
| Redox (ORP mV)                   | 34.3                                                                          |
| parameters                       | @11:45, DTW:47.3, pH:6.97, temp:7.7, cond:2.11, turb:136, DO:8.12, redox:34.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:50, DTW:47.3, pH:6.98, temp:8, cond:2.11, turb:128, DO:7.34, redox:32.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 47.3  |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.98  |
| Conductivity (mS/cm)             | 2.11  |
| Turbidity (NTU)                  | 128   |
| Dissolved Oxygen (mg/L)          | 7.34  |
| Temperature (Degrees Celsius)    | 8     |
| Redox (ORP mV)                   | 32.2  |

parameters

@11:50, DTW:47.3, pH:6.98, temp:8, cond:2.11, turb:128, DO:7.34, redox:32.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:55, DTW:47.3, pH:6.98, temp:7.8, cond:2.12, turb:169, DO:7.23, redox:31.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 47.3  |
| Milliliters Purged (total)       | 5000  |
| pH                               | 6.98  |
| Conductivity (mS/cm)             | 2.12  |
| Turbidity (NTU)                  | 169   |
| Dissolved Oxygen (mg/L)          | 7.23  |
| Temperature (Degrees Celsius)    | 7.8   |
| Redox (ORP mV)                   | 31.7  |

parameters

@11:55, DTW:47.3, pH:6.98, temp:7.8, cond:2.12, turb:169, DO:7.23, redox:31.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:00, DTW:47.3, pH:6.98, temp:7.8, cond:2.12, turb:131, DO:7.07, redox:31.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 47.3  |
| Milliliters Purged (total)       | 5500  |
| pH                               | 6.98  |
| Conductivity (mS/cm)             | 2.12  |
| Turbidity (NTU)                  | 131   |
| Dissolved Oxygen (mg/L)          | 7.07  |
| Temperature (Degrees Celsius)    | 7.8   |
| Redox (ORP mV)                   | 31.6  |

parameters

@12:00, DTW:47.3, pH:6.98, temp:7.8, cond:2.12, turb:131, DO:7.07, redox:31.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:05, DTW:47.3, pH:6.98, temp:7.7, cond:2.13, turb:174, DO:6.95, redox:31.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 47.3  |
| Milliliters Purged (total)       | 6000  |
| pH                               | 6.98  |
| Conductivity (mS/cm)             | 2.13  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 174                                                                           |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 6.95                                                                          |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 7.7                                                                           |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 31.5                                                                          |
| parameters                                                                                                                                                                                                                                                                                                                                       | @12:05, DTW:47.3, pH:6.98, temp:7.7, cond:2.13, turb:174, DO:6.95, redox:31.5 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                               |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 12:05                                                                         |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                   |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6000                                                                          |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.22                                                                          |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:05 |
| Color         | Clear |
| Notable odors | No    |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |                                                                                      |
|--------------------------|--------------------------------------------------------------------------------------|
| Well Location            | Plant 3                                                                              |
| Condition of Well        | Good                                                                                 |
| Well Locked at Arrival   | Yes                                                                                  |
| Well Locked at Departure | Yes                                                                                  |
| Comments                 | Put system into a rest cycle during purging and sampling. Turbidity didn't stabilize |

Signature

A handwritten signature in black ink, consisting of a stylized 'Z' followed by a small 'm' and a large 'L' with a horizontal tail.

Signed 2019-12-05 16:16:52 UTC

---

## 2019-12-03, MW-19-111

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-03 16:40:17 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-03 18:44:06 UTC by Austin Westhuis |
| Location                                                                                          | 42.7446728479515, -84.5864906721605        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-03                                 |
| Well ID                                                                                           | MW-19-111                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | NA                                         |
| Weather                                                                                           | Cloudy, 30F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 25.13         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 27.4          |
| Water Column                                                                                                                                                                                                                                              | 2.27          |
| Gallons in Well                                                                                                                                                                                                                                           | 0.37          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 26.9          |
| Purge Start                                                                                                                                                                                                                                               | 11:35         |

### @11:40, DTW:25.5, pH:6.72, temp:10.9, cond:1.29, turb:6.22, DO:1.11, redox:112.2

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 11:40                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 25.5                                                                             |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 6.72                                                                             |
| Conductivity (mS/cm)          | 1.29                                                                             |
| Turbidity (NTU)               | 6.22                                                                             |
| Dissolved Oxygen (mg/L)       | 1.11                                                                             |
| Temperature (Degrees Celsius) | 10.9                                                                             |
| Redox (ORP mV)                | 112.2                                                                            |
| parameters                    | @11:40, DTW:25.5, pH:6.72, temp:10.9, cond:1.29, turb:6.22, DO:1.11, redox:112.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:45, DTW:25.5, pH:6.72, temp:10.8, cond:1.27, turb:3.35, DO:1.05, redox:69.1

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 25.5                                                                            |
| Milliliters Purged (total)       | 2000                                                                            |
| pH                               | 6.72                                                                            |
| Conductivity (mS/cm)             | 1.27                                                                            |
| Turbidity (NTU)                  | 3.35                                                                            |
| Dissolved Oxygen (mg/L)          | 1.05                                                                            |
| Temperature (Degrees Celsius)    | 10.8                                                                            |
| Redox (ORP mV)                   | 69.1                                                                            |
| parameters                       | @11:45, DTW:25.5, pH:6.72, temp:10.8, cond:1.27, turb:3.35, DO:1.05, redox:69.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:50, DTW:25.5, pH:6.71, temp:11.1, cond:1.2, turb:2.44, DO:1.03, redox:65.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:50                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 25.5                                                                           |
| Milliliters Purged (total)       | 3000                                                                           |
| pH                               | 6.71                                                                           |
| Conductivity (mS/cm)             | 1.2                                                                            |
| Turbidity (NTU)                  | 2.44                                                                           |
| Dissolved Oxygen (mg/L)          | 1.03                                                                           |
| Temperature (Degrees Celsius)    | 11.1                                                                           |
| Redox (ORP mV)                   | 65.1                                                                           |
| parameters                       | @11:50, DTW:25.5, pH:6.71, temp:11.1, cond:1.2, turb:2.44, DO:1.03, redox:65.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:55, DTW:25.5, pH:6.7, temp:11.1, cond:1.2, turb:2.29, DO:1.01, redox:63.8**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 11:55                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 25.5                                                                          |
| Milliliters Purged (total)       | 4000                                                                          |
| pH                               | 6.7                                                                           |
| Conductivity (mS/cm)             | 1.2                                                                           |
| Turbidity (NTU)                  | 2.29                                                                          |
| Dissolved Oxygen (mg/L)          | 1.01                                                                          |
| Temperature (Degrees Celsius)    | 11.1                                                                          |
| Redox (ORP mV)                   | 63.8                                                                          |
| parameters                       | @11:55, DTW:25.5, pH:6.7, temp:11.1, cond:1.2, turb:2.29, DO:1.01, redox:63.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:00, DTW:25.5, pH:6.71, temp:11.2, cond:1.2, turb:2.11, DO:1, redox:62.2**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 12:00                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 200                                                                         |
| Depth to Water (ft)              | 25.5                                                                        |
| Milliliters Purged (total)       | 5000                                                                        |
| pH                               | 6.71                                                                        |
| Conductivity (mS/cm)             | 1.2                                                                         |
| Turbidity (NTU)                  | 2.11                                                                        |
| Dissolved Oxygen (mg/L)          | 1                                                                           |
| Temperature (Degrees Celsius)    | 11.2                                                                        |
| Redox (ORP mV)                   | 62.2                                                                        |
| parameters                       | @12:00, DTW:25.5, pH:6.71, temp:11.2, cond:1.2, turb:2.11, DO:1, redox:62.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 12:10 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:05 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |



Signature

A handwritten signature in black ink, appearing to read "And Nul".

Signed 2019-12-03 16:42:07 UTC

---

## 2019-12-04, MW-19-112

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-04 16:28:45 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-04 17:00:26 UTC by Austin Westhuis |
| Location                                                                                          | 42.7464986360099, -84.5859093871755        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-04                                 |
| Well ID                                                                                           | MW-19-112                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | NA                                         |
| Weather                                                                                           | Cloudy, 35F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 10.29         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 17.55         |
| Water Column                                                                                                                                                                                                                                              | 7.26          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.18          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 15.05         |
| Purge Start                                                                                                                                                                                                                                               | 11:25         |

### @11:30, DTW:11.65, pH:6.33, temp:13.3, cond:5.29, turb:12.5, DO:0.89, redox:42.2

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 11:30                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 11.65                                                                            |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 6.33                                                                             |
| Conductivity (mS/cm)          | 5.29                                                                             |
| Turbidity (NTU)               | 12.5                                                                             |
| Dissolved Oxygen (mg/L)       | 0.89                                                                             |
| Temperature (Degrees Celsius) | 13.3                                                                             |
| Redox (ORP mV)                | 42.2                                                                             |
| parameters                    | @11:30, DTW:11.65, pH:6.33, temp:13.3, cond:5.29, turb:12.5, DO:0.89, redox:42.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:35, DTW:12.02, pH:6.35, temp:12.3, cond:5.23, turb:5.6, DO:0.8, redox:28.9

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:35                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 12.02                                                                          |
| Milliliters Purged (total)       | 2000                                                                           |
| pH                               | 6.35                                                                           |
| Conductivity (mS/cm)             | 5.23                                                                           |
| Turbidity (NTU)                  | 5.6                                                                            |
| Dissolved Oxygen (mg/L)          | 0.8                                                                            |
| Temperature (Degrees Celsius)    | 12.3                                                                           |
| Redox (ORP mV)                   | 28.9                                                                           |
| parameters                       | @11:35, DTW:12.02, pH:6.35, temp:12.3, cond:5.23, turb:5.6, DO:0.8, redox:28.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:40, DTW:12.4, pH:6.37, temp:12.5, cond:5.2, turb:2.46, DO:0.73, redox:18.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:40                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 12.4                                                                           |
| Milliliters Purged (total)       | 3000                                                                           |
| pH                               | 6.37                                                                           |
| Conductivity (mS/cm)             | 5.2                                                                            |
| Turbidity (NTU)                  | 2.46                                                                           |
| Dissolved Oxygen (mg/L)          | 0.73                                                                           |
| Temperature (Degrees Celsius)    | 12.5                                                                           |
| Redox (ORP mV)                   | 18.1                                                                           |
| parameters                       | @11:40, DTW:12.4, pH:6.37, temp:12.5, cond:5.2, turb:2.46, DO:0.73, redox:18.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:45, DTW:12.62, pH:6.37, temp:12.3, cond:5.19, turb:2.1, DO:0.48, redox:12.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 12.62                                                                           |
| Milliliters Purged (total)       | 4000                                                                            |
| pH                               | 6.37                                                                            |
| Conductivity (mS/cm)             | 5.19                                                                            |
| Turbidity (NTU)                  | 2.1                                                                             |
| Dissolved Oxygen (mg/L)          | 0.48                                                                            |
| Temperature (Degrees Celsius)    | 12.3                                                                            |
| Redox (ORP mV)                   | 12.7                                                                            |
| parameters                       | @11:45, DTW:12.62, pH:6.37, temp:12.3, cond:5.19, turb:2.1, DO:0.48, redox:12.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:50, DTW:12.65, pH:6.38, temp:12.5, cond:5.21, turb:1.83, DO:0.49, redox:11.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:50                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 12.65                                                                            |
| Milliliters Purged (total)       | 5000                                                                             |
| pH                               | 6.38                                                                             |
| Conductivity (mS/cm)             | 5.21                                                                             |
| Turbidity (NTU)                  | 1.83                                                                             |
| Dissolved Oxygen (mg/L)          | 0.49                                                                             |
| Temperature (Degrees Celsius)    | 12.5                                                                             |
| Redox (ORP mV)                   | 11.2                                                                             |
| parameters                       | @11:50, DTW:12.65, pH:6.38, temp:12.5, cond:5.21, turb:1.83, DO:0.49, redox:11.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:55, DTW:12.67, pH:6.38, temp:12.4, cond:5.19, turb:1.65, DO:0.46, redox:10.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 12.67                                                                            |
| Milliliters Purged (total)       | 6000                                                                             |
| pH                               | 6.38                                                                             |
| Conductivity (mS/cm)             | 5.19                                                                             |
| Turbidity (NTU)                  | 1.65                                                                             |
| Dissolved Oxygen (mg/L)          | 0.46                                                                             |
| Temperature (Degrees Celsius)    | 12.4                                                                             |
| Redox (ORP mV)                   | 10.3                                                                             |
| parameters                       | @11:55, DTW:12.67, pH:6.38, temp:12.4, cond:5.19, turb:1.65, DO:0.46, redox:10.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 12:05 |
|-----------|-------|

## Sample Information

|               |               |
|---------------|---------------|
| Sample Time   | 12:00         |
| Color         | Slight yellow |
| Notable odors | None          |

## PFAS

|                     |                |
|---------------------|----------------|
| Constituent Sampled | PFAS           |
| Container Type      | 250 mL Plastic |

|                      |      |
|----------------------|------|
| Number of Containers | 2    |
| Preservative         | None |

### Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to be 'And...'. The signature is written in a cursive style with a long horizontal stroke at the end.

Signed 2019-12-04 17:00:21 UTC

## 2019-12-05, MW-19-113

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-05 21:16:43 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-05 21:35:06 UTC by Austin Westhuis |
| Location                                                                                          | 42.7472565276946, -84.5846613217933        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-05                                 |
| Well ID                                                                                           | MW-19-113                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | NA                                         |
| Weather                                                                                           | Cloudy, 35F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 17.88         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 24.6          |
| Water Column                                                                                                                                                                                                                                              | 6.72          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.09          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 22.1          |
| Purge Start                                                                                                                                                                                                                                               | 16:15         |

### @16:20, DTW:19.08, pH:7.29, temp:12.3, cond:1.31, turb:16.6, DO:3.61, redox:115.2

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 16:20                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 19.08                                                                             |
| Milliliters Purged (total)    | 1000                                                                              |
| pH                            | 7.29                                                                              |
| Conductivity (mS/cm)          | 1.31                                                                              |
| Turbidity (NTU)               | 16.6                                                                              |
| Dissolved Oxygen (mg/L)       | 3.61                                                                              |
| Temperature (Degrees Celsius) | 12.3                                                                              |
| Redox (ORP mV)                | 115.2                                                                             |
| parameters                    | @16:20, DTW:19.08, pH:7.29, temp:12.3, cond:1.31, turb:16.6, DO:3.61, redox:115.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @16:25, DTW:19.08, pH:7.28, temp:12.5, cond:1.31, turb:4.72, DO:3.54, redox:117

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 16:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 19.08                                                                           |
| Milliliters Purged (total)       | 2000                                                                            |
| pH                               | 7.28                                                                            |
| Conductivity (mS/cm)             | 1.31                                                                            |
| Turbidity (NTU)                  | 4.72                                                                            |
| Dissolved Oxygen (mg/L)          | 3.54                                                                            |
| Temperature (Degrees Celsius)    | 12.5                                                                            |
| Redox (ORP mV)                   | 117                                                                             |
| parameters                       | @16:25, DTW:19.08, pH:7.28, temp:12.5, cond:1.31, turb:4.72, DO:3.54, redox:117 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:30, DTW:19.08, pH:7.27, temp:12.5, cond:1.3, turb:2.48, DO:3.68, redox:114.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 16:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 19.08                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.27                                                                             |
| Conductivity (mS/cm)             | 1.3                                                                              |
| Turbidity (NTU)                  | 2.48                                                                             |
| Dissolved Oxygen (mg/L)          | 3.68                                                                             |
| Temperature (Degrees Celsius)    | 12.5                                                                             |
| Redox (ORP mV)                   | 114.7                                                                            |
| parameters                       | @16:30, DTW:19.08, pH:7.27, temp:12.5, cond:1.3, turb:2.48, DO:3.68, redox:114.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:35, DTW:19.08, pH:7.27, temp:12.4, cond:1.3, turb:1.79, DO:3.71, redox:115.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 16:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 19.08                                                                            |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 7.27                                                                             |
| Conductivity (mS/cm)             | 1.3                                                                              |
| Turbidity (NTU)                  | 1.79                                                                             |
| Dissolved Oxygen (mg/L)          | 3.71                                                                             |
| Temperature (Degrees Celsius)    | 12.4                                                                             |
| Redox (ORP mV)                   | 115.2                                                                            |
| parameters                       | @16:35, DTW:19.08, pH:7.27, temp:12.4, cond:1.3, turb:1.79, DO:3.71, redox:115.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 16:45 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 16:40 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                |                |
|----------------|----------------|
| Container Type | 250 mL Plastic |
|----------------|----------------|

|                      |   |
|----------------------|---|
| Number of Containers | 2 |
|----------------------|---|

|              |      |
|--------------|------|
| Preservative | None |
|--------------|------|

### Well Information

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature

A handwritten signature in black ink, appearing to be 'Andrew', written in a cursive style.

Signed 2019-12-05 21:18:05 UTC



## 2019-12-05, MW-19-114

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-05 16:17:45 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-05 16:50:06 UTC by Austin Westhuis |
| Location                                                                                          | 42.7441116376247, -84.5816103928579        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-05                                 |
| Well ID                                                                                           | MW-19-114                                  |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | NA                                         |
| Weather                                                                                           | Cloudy, 35F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 0             |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 10.75         |
| Water Column                                                                                                                                                                                                                                              | 10.75         |
| Gallons in Well                                                                                                                                                                                                                                           | 1.75          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 8.25          |
| Purge Start                                                                                                                                                                                                                                               | 11:15         |

### @11:20, DTW:1.39, pH:7.26, temp:9.6, cond:0.41, turb:12.8, DO:0.53, redox:48.3

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 11:20                                                                          |
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 1.39                                                                           |
| Milliliters Purged (total)    | 1000                                                                           |
| pH                            | 7.26                                                                           |
| Conductivity (mS/cm)          | 0.41                                                                           |
| Turbidity (NTU)               | 12.8                                                                           |
| Dissolved Oxygen (mg/L)       | 0.53                                                                           |
| Temperature (Degrees Celsius) | 9.6                                                                            |
| Redox (ORP mV)                | 48.3                                                                           |
| parameters                    | @11:20, DTW:1.39, pH:7.26, temp:9.6, cond:0.41, turb:12.8, DO:0.53, redox:48.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:25, DTW:1.39, pH:7.26, temp:9.6, cond:0.41, turb:10.1, DO:0.45, redox:47.2

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 1.39                                                                           |
| Milliliters Purged (total)       | 2000                                                                           |
| pH                               | 7.26                                                                           |
| Conductivity (mS/cm)             | 0.41                                                                           |
| Turbidity (NTU)                  | 10.1                                                                           |
| Dissolved Oxygen (mg/L)          | 0.45                                                                           |
| Temperature (Degrees Celsius)    | 9.6                                                                            |
| Redox (ORP mV)                   | 47.2                                                                           |
| parameters                       | @11:25, DTW:1.39, pH:7.26, temp:9.6, cond:0.41, turb:10.1, DO:0.45, redox:47.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:30, DTW:1.39, pH:7.26, temp:9.8, cond:0.412, turb:7.63, DO:0.36, redox:45.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 1.39                                                                            |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.26                                                                            |
| Conductivity (mS/cm)             | 0.412                                                                           |
| Turbidity (NTU)                  | 7.63                                                                            |
| Dissolved Oxygen (mg/L)          | 0.36                                                                            |
| Temperature (Degrees Celsius)    | 9.8                                                                             |
| Redox (ORP mV)                   | 45.2                                                                            |
| parameters                       | @11:30, DTW:1.39, pH:7.26, temp:9.8, cond:0.412, turb:7.63, DO:0.36, redox:45.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:35, DTW:1.39, pH:7.26, temp:9.8, cond:0.411, turb:3.79, DO:0.36, redox:44.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 1.39                                                                            |
| Milliliters Purged (total)       | 4000                                                                            |
| pH                               | 7.26                                                                            |
| Conductivity (mS/cm)             | 0.411                                                                           |
| Turbidity (NTU)                  | 3.79                                                                            |
| Dissolved Oxygen (mg/L)          | 0.36                                                                            |
| Temperature (Degrees Celsius)    | 9.8                                                                             |
| Redox (ORP mV)                   | 44.8                                                                            |
| parameters                       | @11:35, DTW:1.39, pH:7.26, temp:9.8, cond:0.411, turb:3.79, DO:0.36, redox:44.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:40, DTW:1.39, pH:7.25, temp:9.6, cond:0.409, turb:2.8, DO:0.32, redox:44.4**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:40                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 1.39                                                                           |
| Milliliters Purged (total)       | 5000                                                                           |
| pH                               | 7.25                                                                           |
| Conductivity (mS/cm)             | 0.409                                                                          |
| Turbidity (NTU)                  | 2.8                                                                            |
| Dissolved Oxygen (mg/L)          | 0.32                                                                           |
| Temperature (Degrees Celsius)    | 9.6                                                                            |
| Redox (ORP mV)                   | 44.4                                                                           |
| parameters                       | @11:40, DTW:1.39, pH:7.25, temp:9.6, cond:0.409, turb:2.8, DO:0.32, redox:44.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:45, DTW:1.39, pH:7.25, temp:9.6, cond:0.411, turb:1.78, DO:0.29, redox:43.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 1.39                                                                            |
| Milliliters Purged (total)       | 6000                                                                            |
| pH                               | 7.25                                                                            |
| Conductivity (mS/cm)             | 0.411                                                                           |
| Turbidity (NTU)                  | 1.78                                                                            |
| Dissolved Oxygen (mg/L)          | 0.29                                                                            |
| Temperature (Degrees Celsius)    | 9.6                                                                             |
| Redox (ORP mV)                   | 43.4                                                                            |
| parameters                       | @11:45, DTW:1.39, pH:7.25, temp:9.6, cond:0.411, turb:1.78, DO:0.29, redox:43.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 11:55 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:50 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                     |                |
|---------------------|----------------|
| Constituent Sampled | PFAS           |
| Container Type      | 250 mL Plastic |

|                      |      |
|----------------------|------|
| Number of Containers | 2    |
| Preservative         | None |

---

**Well Information**

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | No   |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to read 'Andrew', is centered on the page.

Signed 2019-12-05 16:19:10 UTC

---

## 2019-12-20, MW-19-115

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 20:30:18 UTC by Gary Schafer |
| Updated                                                                                           | 2020-03-31 20:48:34 UTC by Gary Schafer |
| Location                                                                                          | 42.5031782733672, -83.4425348137351     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-12-20                              |
| Well ID                                                                                           | MW-19-115                               |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 57.63         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 80.4          |
| Water Column                                                                                                                                                                                                                                                 | 22.77         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                  | 13:15         |

### @13:20, DTW:59.34, pH:7.01, temp:11.3, cond:2.68, turb:343, DO:0.72, redox:126.4

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 13:20                                                                            |
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 59.34                                                                            |
| pH                            | 7.01                                                                             |
| Conductivity (mS/cm)          | 2.68                                                                             |
| Turbidity (NTU)               | 343                                                                              |
| Dissolved Oxygen (mg/L)       | 0.72                                                                             |
| Temperature (Degrees Celsius) | 11.3                                                                             |
| Redox (ORP mV)                | 126.4                                                                            |
| parameters                    | @13:20, DTW:59.34, pH:7.01, temp:11.3, cond:2.68, turb:343, DO:0.72, redox:126.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:25, DTW:60.08, pH:7.06, temp:11.3, cond:2.66, turb:366, DO:0.3, redox:66.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 60.08 |
| pH                               | 7.06  |
| Conductivity (mS/cm)             | 2.66  |
| Turbidity (NTU)                  | 366   |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.3                                                                            |
| Temperature (Degrees Celsius) | 11.3                                                                           |
| Redox (ORP mV)                | 66.3                                                                           |
| parameters                    | @13:25, DTW:60.08, pH:7.06, temp:11.3, cond:2.66, turb:366, DO:0.3, redox:66.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:30, DTW:60.18, pH:7.06, temp:11.1, cond:2.66, turb:297, DO:0.34, redox:61.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 60.18                                                                           |
| pH                               | 7.06                                                                            |
| Conductivity (mS/cm)             | 2.66                                                                            |
| Turbidity (NTU)                  | 297                                                                             |
| Dissolved Oxygen (mg/L)          | 0.34                                                                            |
| Temperature (Degrees Celsius)    | 11.1                                                                            |
| Redox (ORP mV)                   | 61.4                                                                            |
| parameters                       | @13:30, DTW:60.18, pH:7.06, temp:11.1, cond:2.66, turb:297, DO:0.34, redox:61.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:35, DTW:60.33, pH:7.07, temp:11.2, cond:2.64, turb:249, DO:0.34, redox:53.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 60.33                                                                           |
| pH                               | 7.07                                                                            |
| Conductivity (mS/cm)             | 2.64                                                                            |
| Turbidity (NTU)                  | 249                                                                             |
| Dissolved Oxygen (mg/L)          | 0.34                                                                            |
| Temperature (Degrees Celsius)    | 11.2                                                                            |
| Redox (ORP mV)                   | 53.5                                                                            |
| parameters                       | @13:35, DTW:60.33, pH:7.07, temp:11.2, cond:2.64, turb:249, DO:0.34, redox:53.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:60.42, pH:7.07, temp:11.6, cond:2.63, turb:208, DO:0.41, redox:48.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 60.42 |
| pH                               | 7.07  |
| Conductivity (mS/cm)             | 2.63  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Turbidity (NTU)               | 208                                                                             |
| Dissolved Oxygen (mg/L)       | 0.41                                                                            |
| Temperature (Degrees Celsius) | 11.6                                                                            |
| Redox (ORP mV)                | 48.6                                                                            |
| parameters                    | @13:40, DTW:60.42, pH:7.07, temp:11.6, cond:2.63, turb:208, DO:0.41, redox:48.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:45, DTW:60.66, pH:7.06, temp:11.4, cond:2.63, turb:148, DO:0.42, redox:43.6**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 60.66                                                                           |
| pH                               | 7.06                                                                            |
| Conductivity (mS/cm)             | 2.63                                                                            |
| Turbidity (NTU)                  | 148                                                                             |
| Dissolved Oxygen (mg/L)          | 0.42                                                                            |
| Temperature (Degrees Celsius)    | 11.4                                                                            |
| Redox (ORP mV)                   | 43.6                                                                            |
| parameters                       | @13:45, DTW:60.66, pH:7.06, temp:11.4, cond:2.63, turb:148, DO:0.42, redox:43.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:50, DTW:60.85, pH:7.06, temp:11.3, cond:2.63, turb:84, DO:0.49, redox:43.2**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:50                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 60.85                                                                          |
| pH                               | 7.06                                                                           |
| Conductivity (mS/cm)             | 2.63                                                                           |
| Turbidity (NTU)                  | 84                                                                             |
| Dissolved Oxygen (mg/L)          | 0.49                                                                           |
| Temperature (Degrees Celsius)    | 11.3                                                                           |
| Redox (ORP mV)                   | 43.2                                                                           |
| parameters                       | @13:50, DTW:60.85, pH:7.06, temp:11.3, cond:2.63, turb:84, DO:0.49, redox:43.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:55, DTW:61.09, pH:7.06, temp:11.3, cond:2.62, turb:81, DO:0.62, redox:43**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.09 |
| pH                               | 7.06  |

|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 2.62                                                                         |
| Turbidity (NTU)               | 81                                                                           |
| Dissolved Oxygen (mg/L)       | 0.62                                                                         |
| Temperature (Degrees Celsius) | 11.3                                                                         |
| Redox (ORP mV)                | 43                                                                           |
| parameters                    | @13:55, DTW:61.09, pH:7.06, temp:11.3, cond:2.62, turb:81, DO:0.62, redox:43 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:00, DTW:61.15, pH:7.06, temp:11.4, cond:2.62, turb:74, DO:0.48, redox:42.4**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:00                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 61.15                                                                          |
| pH                               | 7.06                                                                           |
| Conductivity (mS/cm)             | 2.62                                                                           |
| Turbidity (NTU)                  | 74                                                                             |
| Dissolved Oxygen (mg/L)          | 0.48                                                                           |
| Temperature (Degrees Celsius)    | 11.4                                                                           |
| Redox (ORP mV)                   | 42.4                                                                           |
| parameters                       | @14:00, DTW:61.15, pH:7.06, temp:11.4, cond:2.62, turb:74, DO:0.48, redox:42.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:05, DTW:61.33, pH:7.05, temp:11.6, cond:2.63, turb:55, DO:0.52, redox:41.9**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:05                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 61.33                                                                          |
| pH                               | 7.05                                                                           |
| Conductivity (mS/cm)             | 2.63                                                                           |
| Turbidity (NTU)                  | 55                                                                             |
| Dissolved Oxygen (mg/L)          | 0.52                                                                           |
| Temperature (Degrees Celsius)    | 11.6                                                                           |
| Redox (ORP mV)                   | 41.9                                                                           |
| parameters                       | @14:05, DTW:61.33, pH:7.05, temp:11.6, cond:2.63, turb:55, DO:0.52, redox:41.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:10, DTW:61.35, pH:7.04, temp:11.3, cond:2.63, turb:47.7, DO:0.53, redox:41.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.35 |



|                               |      |
|-------------------------------|------|
| pH                            | 7.04 |
| Conductivity (mS/cm)          | 2.63 |
| Turbidity (NTU)               | 47.7 |
| Dissolved Oxygen (mg/L)       | 0.53 |
| Temperature (Degrees Celsius) | 11.3 |
| Redox (ORP mV)                | 41.3 |

parameters @14:10, DTW:61.35, pH:7.04, temp:11.3, cond:2.63, turb:47.7, DO:0.53, redox:41.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:15, DTW:61.42, pH:7.05, temp:11.2, cond:2.62, turb:41.9, DO:0.63, redox:40.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.42 |
| pH                               | 7.05  |
| Conductivity (mS/cm)             | 2.62  |
| Turbidity (NTU)                  | 41.9  |
| Dissolved Oxygen (mg/L)          | 0.63  |
| Temperature (Degrees Celsius)    | 11.2  |
| Redox (ORP mV)                   | 40.7  |

parameters @14:15, DTW:61.42, pH:7.05, temp:11.2, cond:2.62, turb:41.9, DO:0.63, redox:40.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:20, DTW:61.48, pH:7.04, temp:11.5, cond:2.63, turb:38.2, DO:0.68, redox:40.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.48 |
| pH                               | 7.04  |
| Conductivity (mS/cm)             | 2.63  |
| Turbidity (NTU)                  | 38.2  |
| Dissolved Oxygen (mg/L)          | 0.68  |
| Temperature (Degrees Celsius)    | 11.5  |
| Redox (ORP mV)                   | 40.5  |

parameters @14:20, DTW:61.48, pH:7.04, temp:11.5, cond:2.63, turb:38.2, DO:0.68, redox:40.5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 14:25   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 2       |

## Sample Information

Sample Time 14:21

---

### Well Information

Well Location MW-19-115

---

Condition of Well Good

---

Well Locked at Arrival Yes

---

Well Locked at Departure Yes

---

Signature

A handwritten signature in black ink, reading "Gary Schuler". The signature is written in a cursive style with a large, stylized "G" and "S".

Signed 2020-03-31 20:48:32 UTC

---

## 2019-12-20, MW-19-116

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 20:09:42 UTC by Gary Schafer |
| Updated                                                                                           | 2020-04-01 11:45:35 UTC by Gary Schafer |
| Location                                                                                          | 42.5031749944172, -83.4427007255409     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-12-20                              |
| Well ID                                                                                           | MW-19-116                               |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Overcast windy                          |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 58.52         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 73.3          |
| Water Column                                                                                                                                                                                                                                                 | 14.78         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                  | 11:55         |

### @12:00, DTW:58.6, pH:7.18, temp:10.8, cond:1.84, turb:57.6, DO:0.08, redox:58.6

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 12:00                                                                           |
| Rate (mL/min)                 | 100                                                                             |
| Depth to Water (ft)           | 58.6                                                                            |
| pH                            | 7.18                                                                            |
| Conductivity (mS/cm)          | 1.84                                                                            |
| Turbidity (NTU)               | 57.6                                                                            |
| Dissolved Oxygen (mg/L)       | 0.08                                                                            |
| Temperature (Degrees Celsius) | 10.8                                                                            |
| Redox (ORP mV)                | 58.6                                                                            |
| parameters                    | @12:00, DTW:58.6, pH:7.18, temp:10.8, cond:1.84, turb:57.6, DO:0.08, redox:58.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:05, DTW:58.68, pH:7.02, temp:11.8, cond:1.88, turb:24.8, DO:0.1, redox:59.13

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 58.68 |
| pH                               | 7.02  |
| Conductivity (mS/cm)             | 1.88  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Turbidity (NTU)               | 24.8                                                                             |
| Dissolved Oxygen (mg/L)       | 0.1                                                                              |
| Temperature (Degrees Celsius) | 11.8                                                                             |
| Redox (ORP mV)                | 59.13                                                                            |
| parameters                    | @12:05, DTW:58.68, pH:7.02, temp:11.8, cond:1.88, turb:24.8, DO:0.1, redox:59.13 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:10, DTW:58.72, pH:7.02, temp:12, cond:1.88, turb:19.6, DO:0.07, redox:57.4**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:10                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 58.72                                                                          |
| pH                               | 7.02                                                                           |
| Conductivity (mS/cm)             | 1.88                                                                           |
| Turbidity (NTU)                  | 19.6                                                                           |
| Dissolved Oxygen (mg/L)          | 0.07                                                                           |
| Temperature (Degrees Celsius)    | 12                                                                             |
| Redox (ORP mV)                   | 57.4                                                                           |
| parameters                       | @12:10, DTW:58.72, pH:7.02, temp:12, cond:1.88, turb:19.6, DO:0.07, redox:57.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:15, DTW:58.75, pH:7.02, temp:11.4, cond:1.88, turb:18.9, DO:0.11, redox:53.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 58.75                                                                            |
| pH                               | 7.02                                                                             |
| Conductivity (mS/cm)             | 1.88                                                                             |
| Turbidity (NTU)                  | 18.9                                                                             |
| Dissolved Oxygen (mg/L)          | 0.11                                                                             |
| Temperature (Degrees Celsius)    | 11.4                                                                             |
| Redox (ORP mV)                   | 53.7                                                                             |
| parameters                       | @12:15, DTW:58.75, pH:7.02, temp:11.4, cond:1.88, turb:18.9, DO:0.11, redox:53.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:20, DTW:58.78, pH:7.02, temp:11.6, cond:1.89, turb:17.2, DO:0.12, redox:49.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 58.78 |
| pH                               | 7.02  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.89                                                                             |
| Turbidity (NTU)               | 17.2                                                                             |
| Dissolved Oxygen (mg/L)       | 0.12                                                                             |
| Temperature (Degrees Celsius) | 11.6                                                                             |
| Redox (ORP mV)                | 49.1                                                                             |
| parameters                    | @12:20, DTW:58.78, pH:7.02, temp:11.6, cond:1.89, turb:17.2, DO:0.12, redox:49.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:25, DTW:58.78, pH:7.02, temp:11.7, cond:1.88, turb:15, DO:0.21, redox:43.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:25                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 58.78                                                                          |
| pH                               | 7.02                                                                           |
| Conductivity (mS/cm)             | 1.88                                                                           |
| Turbidity (NTU)                  | 15                                                                             |
| Dissolved Oxygen (mg/L)          | 0.21                                                                           |
| Temperature (Degrees Celsius)    | 11.7                                                                           |
| Redox (ORP mV)                   | 43.1                                                                           |
| parameters                       | @12:25, DTW:58.78, pH:7.02, temp:11.7, cond:1.88, turb:15, DO:0.21, redox:43.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:30, DTW:58.8, pH:7.02, temp:11.8, cond:1.89, turb:12.7, DO:0.11, redox:37.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 58.8                                                                            |
| pH                               | 7.02                                                                            |
| Conductivity (mS/cm)             | 1.89                                                                            |
| Turbidity (NTU)                  | 12.7                                                                            |
| Dissolved Oxygen (mg/L)          | 0.11                                                                            |
| Temperature (Degrees Celsius)    | 11.8                                                                            |
| Redox (ORP mV)                   | 37.3                                                                            |
| parameters                       | @12:30, DTW:58.8, pH:7.02, temp:11.8, cond:1.89, turb:12.7, DO:0.11, redox:37.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:35, DTW:58.8, pH:6.99, temp:11.4, cond:1.92, turb:8.94, DO:0.2, redox:27.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 58.8  |

|                               |      |
|-------------------------------|------|
| pH                            | 6.99 |
| Conductivity (mS/cm)          | 1.92 |
| Turbidity (NTU)               | 8.94 |
| Dissolved Oxygen (mg/L)       | 0.2  |
| Temperature (Degrees Celsius) | 11.4 |
| Redox (ORP mV)                | 27.8 |

parameters @12:35, DTW:58.8, pH:6.99, temp:11.4, cond:1.92, turb:8.94, DO:0.2, redox:27.8

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:40, DTW:58.8, pH:7, temp:11.8, cond:1.91, turb:6.33, DO:0.24, redox:23.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 58.8  |
| pH                               | 7     |
| Conductivity (mS/cm)             | 1.91  |
| Turbidity (NTU)                  | 6.33  |
| Dissolved Oxygen (mg/L)          | 0.24  |
| Temperature (Degrees Celsius)    | 11.8  |
| Redox (ORP mV)                   | 23.2  |

parameters @12:40, DTW:58.8, pH:7, temp:11.8, cond:1.91, turb:6.33, DO:0.24, redox:23.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:45, DTW:58.8, pH:7.01, temp:11.9, cond:1.92, turb:6.29, DO:0.19, redox:20.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 58.8  |
| pH                               | 7.01  |
| Conductivity (mS/cm)             | 1.92  |
| Turbidity (NTU)                  | 6.29  |
| Dissolved Oxygen (mg/L)          | 0.19  |
| Temperature (Degrees Celsius)    | 11.9  |
| Redox (ORP mV)                   | 20.2  |

parameters @12:45, DTW:58.8, pH:7.01, temp:11.9, cond:1.92, turb:6.29, DO:0.19, redox:20.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 12:49   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 1.5     |

## **Sample Information**

|             |       |
|-------------|-------|
| Sample Time | 12:46 |
| Color       | Clear |

### Well Information

|                          |           |
|--------------------------|-----------|
| Well Location            | MW 19-116 |
| Condition of Well        | Good      |
| Well Locked at Arrival   | Yes       |
| Well Locked at Departure | Yes       |
| Signature                |           |

Gary  
Schuler

Signed 2020-03-31 20:25:28 UTC

## 2019-12-04, MW-19-120

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-04 18:58:25 UTC by Billy Cobern |
| Updated                                                                                           | 2019-12-04 19:59:53 UTC by Billy Cobern |
| Location                                                                                          | 42.7376884175862, -84.5835930482341     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-12-04                              |
| Well ID                                                                                           | MW-19-120                               |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Cloudy, windy, light snow, 30's         |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 63.94         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 74.08         |
| Water Column                                                                                                                                                                                                                                                 | 10.14         |
| Gallons in Well                                                                                                                                                                                                                                              | 1.65          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 71.5          |
| Purge Start                                                                                                                                                                                                                                                  | 14:00         |

### @14:00, DTW:63.94, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 14:00                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 63.94                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @14:00, DTW:63.94, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:05, DTW:63.95, pH:7.24, temp:6.5, cond:1.87, turb:68.7, DO:6.32, redox:-77.2

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 63.95 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.24  |
| Conductivity (mS/cm)             | 1.87  |



|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Turbidity (NTU)               | 68.7                                                                             |
| Dissolved Oxygen (mg/L)       | 6.32                                                                             |
| Temperature (Degrees Celsius) | 6.5                                                                              |
| Redox (ORP mV)                | -77.2                                                                            |
| parameters                    | @14:05, DTW:63.95, pH:7.24, temp:6.5, cond:1.87, turb:68.7, DO:6.32, redox:-77.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:10, DTW:63.95, pH:7.14, temp:7.9, cond:1.92, turb:60.4, DO:2.7, redox:-88.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:10                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 63.95                                                                           |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.14                                                                            |
| Conductivity (mS/cm)             | 1.92                                                                            |
| Turbidity (NTU)                  | 60.4                                                                            |
| Dissolved Oxygen (mg/L)          | 2.7                                                                             |
| Temperature (Degrees Celsius)    | 7.9                                                                             |
| Redox (ORP mV)                   | -88.2                                                                           |
| parameters                       | @14:10, DTW:63.95, pH:7.14, temp:7.9, cond:1.92, turb:60.4, DO:2.7, redox:-88.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:15, DTW:63.95, pH:7.02, temp:8.2, cond:1.97, turb:58.5, DO:1.04, redox:-97.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 63.95                                                                            |
| Milliliters Purged (total)       | 1500                                                                             |
| pH                               | 7.02                                                                             |
| Conductivity (mS/cm)             | 1.97                                                                             |
| Turbidity (NTU)                  | 58.5                                                                             |
| Dissolved Oxygen (mg/L)          | 1.04                                                                             |
| Temperature (Degrees Celsius)    | 8.2                                                                              |
| Redox (ORP mV)                   | -97.3                                                                            |
| parameters                       | @14:15, DTW:63.95, pH:7.02, temp:8.2, cond:1.97, turb:58.5, DO:1.04, redox:-97.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:20, DTW:63.95, pH:6.94, temp:8.4, cond:2.01, turb:55.1, DO:0.99, redox:-108.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Depth to Water (ft)           | 63.95                                                                             |
| Milliliters Purged (total)    | 2000                                                                              |
| pH                            | 6.94                                                                              |
| Conductivity (mS/cm)          | 2.01                                                                              |
| Turbidity (NTU)               | 55.1                                                                              |
| Dissolved Oxygen (mg/L)       | 0.99                                                                              |
| Temperature (Degrees Celsius) | 8.4                                                                               |
| Redox (ORP mV)                | -108.4                                                                            |
| parameters                    | @14:20, DTW:63.95, pH:6.94, temp:8.4, cond:2.01, turb:55.1, DO:0.99, redox:-108.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:25, DTW:63.95, pH:6.91, temp:8.6, cond:2.04, turb:53.3, DO:0.93, redox:-118.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:25                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 63.95                                                                             |
| Milliliters Purged (total)       | 2500                                                                              |
| pH                               | 6.91                                                                              |
| Conductivity (mS/cm)             | 2.04                                                                              |
| Turbidity (NTU)                  | 53.3                                                                              |
| Dissolved Oxygen (mg/L)          | 0.93                                                                              |
| Temperature (Degrees Celsius)    | 8.6                                                                               |
| Redox (ORP mV)                   | -118.2                                                                            |
| parameters                       | @14:25, DTW:63.95, pH:6.91, temp:8.6, cond:2.04, turb:53.3, DO:0.93, redox:-118.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:30, DTW:63.95, pH:6.9, temp:8.3, cond:2.06, turb:54.2, DO:0.74, redox:-126**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:30                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 63.95                                                                          |
| Milliliters Purged (total)       | 3000                                                                           |
| pH                               | 6.9                                                                            |
| Conductivity (mS/cm)             | 2.06                                                                           |
| Turbidity (NTU)                  | 54.2                                                                           |
| Dissolved Oxygen (mg/L)          | 0.74                                                                           |
| Temperature (Degrees Celsius)    | 8.3                                                                            |
| Redox (ORP mV)                   | -126                                                                           |
| parameters                       | @14:30, DTW:63.95, pH:6.9, temp:8.3, cond:2.06, turb:54.2, DO:0.74, redox:-126 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:35, DTW:63.95, pH:6.89, temp:8.2, cond:2.08, turb:50.3, DO:0.66, redox:-125.3**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 63.95                                                                             |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 6.89                                                                              |
| Conductivity (mS/cm)             | 2.08                                                                              |
| Turbidity (NTU)                  | 50.3                                                                              |
| Dissolved Oxygen (mg/L)          | 0.66                                                                              |
| Temperature (Degrees Celsius)    | 8.2                                                                               |
| Redox (ORP mV)                   | -125.3                                                                            |
| parameters                       | @14:35, DTW:63.95, pH:6.89, temp:8.2, cond:2.08, turb:50.3, DO:0.66, redox:-125.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:40, DTW:63.95, pH:6.89, temp:7.8, cond:2.09, turb:49.4, DO:0.56, redox:-129.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:40                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 63.95                                                                             |
| Milliliters Purged (total)       | 4000                                                                              |
| pH                               | 6.89                                                                              |
| Conductivity (mS/cm)             | 2.09                                                                              |
| Turbidity (NTU)                  | 49.4                                                                              |
| Dissolved Oxygen (mg/L)          | 0.56                                                                              |
| Temperature (Degrees Celsius)    | 7.8                                                                               |
| Redox (ORP mV)                   | -129.2                                                                            |
| parameters                       | @14:40, DTW:63.95, pH:6.89, temp:7.8, cond:2.09, turb:49.4, DO:0.56, redox:-129.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:45, DTW:63.95, pH:6.89, temp:7.2, cond:2.07, turb:46.2, DO:0.6, redox:-130.9**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 14:45  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 100    |
| Depth to Water (ft)              | 63.95  |
| Milliliters Purged (total)       | 4500   |
| pH                               | 6.89   |
| Conductivity (mS/cm)             | 2.07   |
| Turbidity (NTU)                  | 46.2   |
| Dissolved Oxygen (mg/L)          | 0.6    |
| Temperature (Degrees Celsius)    | 7.2    |
| Redox (ORP mV)                   | -130.9 |

parameters

@14:45, DTW:63.95, pH:6.89, temp:7.2, cond:2.07, turb:46.2, DO:0.6, redox:-130.9

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:50, DTW:63.95, pH:6.89, temp:7, cond:2.08, turb:42.2, DO:0.62, redox:-134.7**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 14:50  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 100    |
| Depth to Water (ft)              | 63.95  |
| Milliliters Purged (total)       | 5000   |
| pH                               | 6.89   |
| Conductivity (mS/cm)             | 2.08   |
| Turbidity (NTU)                  | 42.2   |
| Dissolved Oxygen (mg/L)          | 0.62   |
| Temperature (Degrees Celsius)    | 7      |
| Redox (ORP mV)                   | -134.7 |

parameters

@14:50, DTW:63.95, pH:6.89, temp:7, cond:2.08, turb:42.2, DO:0.62, redox:-134.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:55, DTW:63.95, pH:6.89, temp:7, cond:2.08, turb:40.4, DO:0.65, redox:-134.2**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 14:55  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 100    |
| Depth to Water (ft)              | 63.95  |
| Milliliters Purged (total)       | 5500   |
| pH                               | 6.89   |
| Conductivity (mS/cm)             | 2.08   |
| Turbidity (NTU)                  | 40.4   |
| Dissolved Oxygen (mg/L)          | 0.65   |
| Temperature (Degrees Celsius)    | 7      |
| Redox (ORP mV)                   | -134.2 |

parameters

@14:55, DTW:63.95, pH:6.89, temp:7, cond:2.08, turb:40.4, DO:0.65, redox:-134.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:00, DTW:63.95, pH:6.89, temp:7.1, cond:2.08, turb:39.7, DO:0.63, redox:-133**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 63.95 |
| Milliliters Purged (total)       | 6000  |
| pH                               | 6.89  |
| Conductivity (mS/cm)             | 2.08  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 39.7                                                                            |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.63                                                                            |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 7.1                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -133                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @15:00, DTW:63.95, pH:6.89, temp:7.1, cond:2.08, turb:39.7, DO:0.63, redox:-133 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                 |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 15:00                                                                           |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                     |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6000                                                                            |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.96                                                                            |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:00 |
| Color         | Clear |
| Notable odors | No    |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to be 'Zy/L' or similar, with a long horizontal stroke extending to the right.

Signed 2019-12-04 19:08:23 UTC

---

## 2019-12-04, MW-19-121

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-04 17:04:45 UTC by Billy Cobern |
| Updated                                                                                           | 2019-12-04 17:16:38 UTC by Billy Cobern |
| Location                                                                                          | 42.7371212561081, -84.5845868066741     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-12-04                              |
| Well ID                                                                                           | MW-19-121                               |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Cloudy, windy, 30's                     |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 63.08         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 73.72         |
| Water Column                                                                                                                                                                                                                                                 | 10.64         |
| Gallons in Well                                                                                                                                                                                                                                              | 1.73          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 71            |
| Purge Start                                                                                                                                                                                                                                                  | 11:40         |

### @11:40, DTW:63.08, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 11:40                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 63.08                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @11:40, DTW:63.08, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:45, DTW:63.1, pH:7.1, temp:11.1, cond:1.27, turb:18.6, DO:1.3, redox:-160.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 63.1  |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.1   |
| Conductivity (mS/cm)             | 1.27  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Turbidity (NTU)               | 18.6                                                                            |
| Dissolved Oxygen (mg/L)       | 1.3                                                                             |
| Temperature (Degrees Celsius) | 11.1                                                                            |
| Redox (ORP mV)                | -160.7                                                                          |
| parameters                    | @11:45, DTW:63.1, pH:7.1, temp:11.1, cond:1.27, turb:18.6, DO:1.3, redox:-160.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:50, DTW:63.1, pH:7.09, temp:11, cond:1.27, turb:16.2, DO:1.02, redox:-168.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:50                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 63.1                                                                            |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.09                                                                            |
| Conductivity (mS/cm)             | 1.27                                                                            |
| Turbidity (NTU)                  | 16.2                                                                            |
| Dissolved Oxygen (mg/L)          | 1.02                                                                            |
| Temperature (Degrees Celsius)    | 11                                                                              |
| Redox (ORP mV)                   | -168.5                                                                          |
| parameters                       | @11:50, DTW:63.1, pH:7.09, temp:11, cond:1.27, turb:16.2, DO:1.02, redox:-168.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:55, DTW:63.12, pH:7.08, temp:11, cond:1.27, turb:13.3, DO:0.84, redox:-177.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 63.12                                                                            |
| Milliliters Purged (total)       | 1500                                                                             |
| pH                               | 7.08                                                                             |
| Conductivity (mS/cm)             | 1.27                                                                             |
| Turbidity (NTU)                  | 13.3                                                                             |
| Dissolved Oxygen (mg/L)          | 0.84                                                                             |
| Temperature (Degrees Celsius)    | 11                                                                               |
| Redox (ORP mV)                   | -177.2                                                                           |
| parameters                       | @11:55, DTW:63.12, pH:7.08, temp:11, cond:1.27, turb:13.3, DO:0.84, redox:-177.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:00, DTW:63.13, pH:7.08, temp:10.8, cond:1.27, turb:10.3, DO:0.82, redox:-184**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |



|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Depth to Water (ft)           | 63.13                                                                            |
| Milliliters Purged (total)    | 2000                                                                             |
| pH                            | 7.08                                                                             |
| Conductivity (mS/cm)          | 1.27                                                                             |
| Turbidity (NTU)               | 10.3                                                                             |
| Dissolved Oxygen (mg/L)       | 0.82                                                                             |
| Temperature (Degrees Celsius) | 10.8                                                                             |
| Redox (ORP mV)                | -184                                                                             |
| parameters                    | @12:00, DTW:63.13, pH:7.08, temp:10.8, cond:1.27, turb:10.3, DO:0.82, redox:-184 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:05, DTW:63.13, pH:7.08, temp:10.2, cond:1.28, turb:9.34, DO:0.82, redox:-189.8**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 12:05                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 100                                                                                |
| Depth to Water (ft)              | 63.13                                                                              |
| Milliliters Purged (total)       | 2500                                                                               |
| pH                               | 7.08                                                                               |
| Conductivity (mS/cm)             | 1.28                                                                               |
| Turbidity (NTU)                  | 9.34                                                                               |
| Dissolved Oxygen (mg/L)          | 0.82                                                                               |
| Temperature (Degrees Celsius)    | 10.2                                                                               |
| Redox (ORP mV)                   | -189.8                                                                             |
| parameters                       | @12:05, DTW:63.13, pH:7.08, temp:10.2, cond:1.28, turb:9.34, DO:0.82, redox:-189.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:10, DTW:63.13, pH:7.07, temp:9.8, cond:1.28, turb:9.03, DO:0.78, redox:-193.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:10                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 63.13                                                                             |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 7.07                                                                              |
| Conductivity (mS/cm)             | 1.28                                                                              |
| Turbidity (NTU)                  | 9.03                                                                              |
| Dissolved Oxygen (mg/L)          | 0.78                                                                              |
| Temperature (Degrees Celsius)    | 9.8                                                                               |
| Redox (ORP mV)                   | -193.2                                                                            |
| parameters                       | @12:10, DTW:63.13, pH:7.07, temp:9.8, cond:1.28, turb:9.03, DO:0.78, redox:-193.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:15, DTW:63.13, pH:7.06, temp:9.6, cond:1.28, turb:8.34, DO:0.79, redox:-199.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 63.13                                                                             |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 7.06                                                                              |
| Conductivity (mS/cm)             | 1.28                                                                              |
| Turbidity (NTU)                  | 8.34                                                                              |
| Dissolved Oxygen (mg/L)          | 0.79                                                                              |
| Temperature (Degrees Celsius)    | 9.6                                                                               |
| Redox (ORP mV)                   | -199.5                                                                            |
| parameters                       | @12:15, DTW:63.13, pH:7.06, temp:9.6, cond:1.28, turb:8.34, DO:0.79, redox:-199.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:20, DTW:63.13, pH:7.07, temp:9.6, cond:1.27, turb:8.01, DO:0.74, redox:-203.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 63.13                                                                             |
| Milliliters Purged (total)       | 4000                                                                              |
| pH                               | 7.07                                                                              |
| Conductivity (mS/cm)             | 1.27                                                                              |
| Turbidity (NTU)                  | 8.01                                                                              |
| Dissolved Oxygen (mg/L)          | 0.74                                                                              |
| Temperature (Degrees Celsius)    | 9.6                                                                               |
| Redox (ORP mV)                   | -203.1                                                                            |
| parameters                       | @12:20, DTW:63.13, pH:7.07, temp:9.6, cond:1.27, turb:8.01, DO:0.74, redox:-203.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:25, DTW:63.13, pH:7.06, temp:9.5, cond:1.28, turb:7.68, DO:0.75, redox:-207.4**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 12:25  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 100    |
| Depth to Water (ft)              | 63.13  |
| Milliliters Purged (total)       | 4500   |
| pH                               | 7.06   |
| Conductivity (mS/cm)             | 1.28   |
| Turbidity (NTU)                  | 7.68   |
| Dissolved Oxygen (mg/L)          | 0.75   |
| Temperature (Degrees Celsius)    | 9.5    |
| Redox (ORP mV)                   | -207.4 |

parameters

@12:25, DTW:63.13, pH:7.06, temp:9.5, cond:1.28, turb:7.68, DO:0.75, redox:-207.4

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 12:25 |
|-----------|-------|

|                               |             |
|-------------------------------|-------------|
| Total Volume Measured (units) | Milliliters |
|-------------------------------|-------------|

|                          |      |
|--------------------------|------|
| Total Milliliters Purged | 4500 |
|--------------------------|------|

|                     |      |
|---------------------|------|
| Well Volumes Purged | 0.69 |
|---------------------|------|

## Sample Information

|             |       |
|-------------|-------|
| Sample Time | 12:25 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |    |
|---------------|----|
| Notable odors | No |
|---------------|----|

## 1,4-Dioxane

|                     |             |
|---------------------|-------------|
| Constituent Sampled | 1,4-Dioxane |
|---------------------|-------------|

|                |            |
|----------------|------------|
| Container Type | 40 mL Vial |
|----------------|------------|

|                      |   |
|----------------------|---|
| Number of Containers | 3 |
|----------------------|---|

|              |     |
|--------------|-----|
| Preservative | HCL |
|--------------|-----|

## Well Information

|               |         |
|---------------|---------|
| Well Location | Plant 2 |
|---------------|---------|

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature

A handwritten signature in black ink, appearing to be '34/1' followed by a stylized flourish.

Signed 2019-12-04 17:06:56 UTC

## 2019-12-03, MW-19-122

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-03 20:29:31 UTC by Billy Cobern |
| Updated                                                                                           | 2019-12-03 20:50:29 UTC by Billy Cobern |
| Location                                                                                          | 42.737196064594, -84.5851489809198      |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-12-03                              |
| Well ID                                                                                           | MW-19-122                               |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Cloudy, 30's                            |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 62.92         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 73.72         |
| Water Column                                                                                                                                                                                                                                           | 10.8          |
| Gallons in Well                                                                                                                                                                                                                                        | 1.75          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Bladder       |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 71            |
| Purge Start                                                                                                                                                                                                                                            | 15:20         |

### @15:20, DTW:62.92, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 15:20                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 62.92                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @15:20, DTW:62.92, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:25, DTW:62.94, pH:6.82, temp:9.5, cond:3.86, turb:6.23, DO:3.05, redox:16.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 62.94 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.82  |
| Conductivity (mS/cm)             | 3.86  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Turbidity (NTU)               | 6.23                                                                            |
| Dissolved Oxygen (mg/L)       | 3.05                                                                            |
| Temperature (Degrees Celsius) | 9.5                                                                             |
| Redox (ORP mV)                | 16.9                                                                            |
| parameters                    | @15:25, DTW:62.94, pH:6.82, temp:9.5, cond:3.86, turb:6.23, DO:3.05, redox:16.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:30, DTW:62.94, pH:6.79, temp:10.5, cond:3.85, turb:5.41, DO:2.68, redox:13.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 62.94                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 6.79                                                                             |
| Conductivity (mS/cm)             | 3.85                                                                             |
| Turbidity (NTU)                  | 5.41                                                                             |
| Dissolved Oxygen (mg/L)          | 2.68                                                                             |
| Temperature (Degrees Celsius)    | 10.5                                                                             |
| Redox (ORP mV)                   | 13.5                                                                             |
| parameters                       | @15:30, DTW:62.94, pH:6.79, temp:10.5, cond:3.85, turb:5.41, DO:2.68, redox:13.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:35, DTW:62.94, pH:6.78, temp:10.5, cond:3.84, turb:4.12, DO:2.1, redox:10.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 62.94                                                                           |
| Milliliters Purged (total)       | 1500                                                                            |
| pH                               | 6.78                                                                            |
| Conductivity (mS/cm)             | 3.84                                                                            |
| Turbidity (NTU)                  | 4.12                                                                            |
| Dissolved Oxygen (mg/L)          | 2.1                                                                             |
| Temperature (Degrees Celsius)    | 10.5                                                                            |
| Redox (ORP mV)                   | 10.3                                                                            |
| parameters                       | @15:35, DTW:62.94, pH:6.78, temp:10.5, cond:3.84, turb:4.12, DO:2.1, redox:10.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:40, DTW:62.94, pH:6.77, temp:11.2, cond:3.89, turb:3.45, DO:1.2, redox:5.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Depth to Water (ft)           | 62.94                                                                          |
| Milliliters Purged (total)    | 2000                                                                           |
| pH                            | 6.77                                                                           |
| Conductivity (mS/cm)          | 3.89                                                                           |
| Turbidity (NTU)               | 3.45                                                                           |
| Dissolved Oxygen (mg/L)       | 1.2                                                                            |
| Temperature (Degrees Celsius) | 11.2                                                                           |
| Redox (ORP mV)                | 5.1                                                                            |
| parameters                    | @15:40, DTW:62.94, pH:6.77, temp:11.2, cond:3.89, turb:3.45, DO:1.2, redox:5.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:45, DTW:62.94, pH:6.77, temp:11, cond:3.89, turb:2.84, DO:0.95, redox:3.3**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 15:45                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 62.94                                                                         |
| Milliliters Purged (total)       | 2500                                                                          |
| pH                               | 6.77                                                                          |
| Conductivity (mS/cm)             | 3.89                                                                          |
| Turbidity (NTU)                  | 2.84                                                                          |
| Dissolved Oxygen (mg/L)          | 0.95                                                                          |
| Temperature (Degrees Celsius)    | 11                                                                            |
| Redox (ORP mV)                   | 3.3                                                                           |
| parameters                       | @15:45, DTW:62.94, pH:6.77, temp:11, cond:3.89, turb:2.84, DO:0.95, redox:3.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:50, DTW:62.94, pH:6.76, temp:11.4, cond:3.9, turb:2.69, DO:0.96, redox:0.7**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:50                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 62.94                                                                          |
| Milliliters Purged (total)       | 3000                                                                           |
| pH                               | 6.76                                                                           |
| Conductivity (mS/cm)             | 3.9                                                                            |
| Turbidity (NTU)                  | 2.69                                                                           |
| Dissolved Oxygen (mg/L)          | 0.96                                                                           |
| Temperature (Degrees Celsius)    | 11.4                                                                           |
| Redox (ORP mV)                   | 0.7                                                                            |
| parameters                       | @15:50, DTW:62.94, pH:6.76, temp:11.4, cond:3.9, turb:2.69, DO:0.96, redox:0.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:55, DTW:62.94, pH:6.77, temp:11.7, cond:3.9, turb:2.39, DO:0.97, redox:-0.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:55                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 62.94                                                                           |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 6.77                                                                            |
| Conductivity (mS/cm)             | 3.9                                                                             |
| Turbidity (NTU)                  | 2.39                                                                            |
| Dissolved Oxygen (mg/L)          | 0.97                                                                            |
| Temperature (Degrees Celsius)    | 11.7                                                                            |
| Redox (ORP mV)                   | -0.8                                                                            |
| parameters                       | @15:55, DTW:62.94, pH:6.77, temp:11.7, cond:3.9, turb:2.39, DO:0.97, redox:-0.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 15:55       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 3500        |
| Well Volumes Purged           | 0.53        |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:55 |
| Color         | Clear |
| Notable odors | No    |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of the letters '34' followed by a stylized flourish.

Signed 2019-12-03 20:31:33 UTC

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## 2019-12-03, MW-19-123

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-03 19:36:23 UTC by Billy Cobern |
| Updated                                                                                           | 2019-12-03 21:10:12 UTC by Billy Cobern |
| Location                                                                                          | 42.7365775220494, -84.5855637174887     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-12-03                              |
| Well ID                                                                                           | MW-19-123                               |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Cloudy, 30's                            |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 60.61         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 73.96         |
| Water Column                                                                                                                                                                                                                                                 | 13.35         |
| Gallons in Well                                                                                                                                                                                                                                              | 2.17          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 71.5          |
| Purge Start                                                                                                                                                                                                                                                  | 14:25         |

### @14:25, DTW:60.61, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 14:25                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 60.61                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @14:25, DTW:60.61, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:30, DTW:61.07, pH:7.86, temp:8.6, cond:0.81, turb:7.72, DO:3.19, redox:140.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.07 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.86  |
| Conductivity (mS/cm)             | 0.81  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Turbidity (NTU)               | 7.72                                                                             |
| Dissolved Oxygen (mg/L)       | 3.19                                                                             |
| Temperature (Degrees Celsius) | 8.6                                                                              |
| Redox (ORP mV)                | 140.1                                                                            |
| parameters                    | @14:30, DTW:61.07, pH:7.86, temp:8.6, cond:0.81, turb:7.72, DO:3.19, redox:140.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:35, DTW:61.59, pH:7.82, temp:7.4, cond:0.81, turb:6.65, DO:3.11, redox:142.9**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 61.59                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.82                                                                             |
| Conductivity (mS/cm)             | 0.81                                                                             |
| Turbidity (NTU)                  | 6.65                                                                             |
| Dissolved Oxygen (mg/L)          | 3.11                                                                             |
| Temperature (Degrees Celsius)    | 7.4                                                                              |
| Redox (ORP mV)                   | 142.9                                                                            |
| parameters                       | @14:35, DTW:61.59, pH:7.82, temp:7.4, cond:0.81, turb:6.65, DO:3.11, redox:142.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:40, DTW:61.77, pH:7.81, temp:7.3, cond:0.81, turb:5.32, DO:3.1, redox:143.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 61.77                                                                           |
| Milliliters Purged (total)       | 1500                                                                            |
| pH                               | 7.81                                                                            |
| Conductivity (mS/cm)             | 0.81                                                                            |
| Turbidity (NTU)                  | 5.32                                                                            |
| Dissolved Oxygen (mg/L)          | 3.1                                                                             |
| Temperature (Degrees Celsius)    | 7.3                                                                             |
| Redox (ORP mV)                   | 143.3                                                                           |
| parameters                       | @14:40, DTW:61.77, pH:7.81, temp:7.3, cond:0.81, turb:5.32, DO:3.1, redox:143.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:45, DTW:61.98, pH:7.81, temp:7.1, cond:0.81, turb:4.03, DO:3.07, redox:143.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Depth to Water (ft)           | 61.98                                                                            |
| Milliliters Purged (total)    | 2000                                                                             |
| pH                            | 7.81                                                                             |
| Conductivity (mS/cm)          | 0.81                                                                             |
| Turbidity (NTU)               | 4.03                                                                             |
| Dissolved Oxygen (mg/L)       | 3.07                                                                             |
| Temperature (Degrees Celsius) | 7.1                                                                              |
| Redox (ORP mV)                | 143.7                                                                            |
| parameters                    | @14:45, DTW:61.98, pH:7.81, temp:7.1, cond:0.81, turb:4.03, DO:3.07, redox:143.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:50, DTW:62.14, pH:7.81, temp:6.9, cond:0.81, turb:3.11, DO:3.06, redox:143.9**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:50                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 62.14                                                                            |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 7.81                                                                             |
| Conductivity (mS/cm)             | 0.81                                                                             |
| Turbidity (NTU)                  | 3.11                                                                             |
| Dissolved Oxygen (mg/L)          | 3.06                                                                             |
| Temperature (Degrees Celsius)    | 6.9                                                                              |
| Redox (ORP mV)                   | 143.9                                                                            |
| parameters                       | @14:50, DTW:62.14, pH:7.81, temp:6.9, cond:0.81, turb:3.11, DO:3.06, redox:143.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:55, DTW:62.21, pH:7.8, temp:6.9, cond:0.81, turb:2.73, DO:3.07, redox:144.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:55                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 62.21                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.8                                                                             |
| Conductivity (mS/cm)             | 0.81                                                                            |
| Turbidity (NTU)                  | 2.73                                                                            |
| Dissolved Oxygen (mg/L)          | 3.07                                                                            |
| Temperature (Degrees Celsius)    | 6.9                                                                             |
| Redox (ORP mV)                   | 144.2                                                                           |
| parameters                       | @14:55, DTW:62.21, pH:7.8, temp:6.9, cond:0.81, turb:2.73, DO:3.07, redox:144.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:00, DTW:62.27, pH:7.8, temp:6.7, cond:0.81, turb:2.92, DO:3.14, redox:144.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 62.27                                                                           |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 7.8                                                                             |
| Conductivity (mS/cm)             | 0.81                                                                            |
| Turbidity (NTU)                  | 2.92                                                                            |
| Dissolved Oxygen (mg/L)          | 3.14                                                                            |
| Temperature (Degrees Celsius)    | 6.7                                                                             |
| Redox (ORP mV)                   | 144.7                                                                           |
| parameters                       | @15:00, DTW:62.27, pH:7.8, temp:6.7, cond:0.81, turb:2.92, DO:3.14, redox:144.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 15:00       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 3500        |
| Well Volumes Purged           | 0.43        |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:00 |
| Color         | Clear |
| Notable odors | No    |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

3u 11

Signed 2019-12-03 19:38:54 UTC

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## 2019-12-04, MW-19-124

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-04 17:57:47 UTC by Billy Cobern |
| Updated                                                                                           | 2019-12-04 18:20:27 UTC by Billy Cobern |
| Location                                                                                          | 42.7375415666427, -84.584340797816      |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-12-04                              |
| Well ID                                                                                           | MW-19-124                               |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Cloudy, windy, 30's                     |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 63.61         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 72.31         |
| Water Column                                                                                                                                                                                                                                                 | 8.7           |
| Gallons in Well                                                                                                                                                                                                                                              | 1.41          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 70            |
| Purge Start                                                                                                                                                                                                                                                  | 12:50         |

### @12:50, DTW:63.61, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 12:50                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 63.61                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @12:50, DTW:63.61, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:55, DTW:63.62, pH:7.15, temp:9.8, cond:1.96, turb:28.6, DO:5.01, redox:-144.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 63.62 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.15  |
| Conductivity (mS/cm)             | 1.96  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Turbidity (NTU)               | 28.6                                                                              |
| Dissolved Oxygen (mg/L)       | 5.01                                                                              |
| Temperature (Degrees Celsius) | 9.8                                                                               |
| Redox (ORP mV)                | -144.9                                                                            |
| parameters                    | @12:55, DTW:63.62, pH:7.15, temp:9.8, cond:1.96, turb:28.6, DO:5.01, redox:-144.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:00, DTW:63.62, pH:6.9, temp:10.3, cond:2.07, turb:30.8, DO:1.56, redox:-175.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:00                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 63.62                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 6.9                                                                               |
| Conductivity (mS/cm)             | 2.07                                                                              |
| Turbidity (NTU)                  | 30.8                                                                              |
| Dissolved Oxygen (mg/L)          | 1.56                                                                              |
| Temperature (Degrees Celsius)    | 10.3                                                                              |
| Redox (ORP mV)                   | -175.1                                                                            |
| parameters                       | @13:00, DTW:63.62, pH:6.9, temp:10.3, cond:2.07, turb:30.8, DO:1.56, redox:-175.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:05, DTW:63.62, pH:6.88, temp:9.7, cond:2.14, turb:26.7, DO:0.89, redox:-192.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:05                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 63.62                                                                             |
| Milliliters Purged (total)       | 1500                                                                              |
| pH                               | 6.88                                                                              |
| Conductivity (mS/cm)             | 2.14                                                                              |
| Turbidity (NTU)                  | 26.7                                                                              |
| Dissolved Oxygen (mg/L)          | 0.89                                                                              |
| Temperature (Degrees Celsius)    | 9.7                                                                               |
| Redox (ORP mV)                   | -192.4                                                                            |
| parameters                       | @13:05, DTW:63.62, pH:6.88, temp:9.7, cond:2.14, turb:26.7, DO:0.89, redox:-192.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:10, DTW:63.62, pH:6.87, temp:8.7, cond:2.15, turb:22.6, DO:0.75, redox:-204.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Depth to Water (ft)           | 63.62                                                                             |
| Milliliters Purged (total)    | 2000                                                                              |
| pH                            | 6.87                                                                              |
| Conductivity (mS/cm)          | 2.15                                                                              |
| Turbidity (NTU)               | 22.6                                                                              |
| Dissolved Oxygen (mg/L)       | 0.75                                                                              |
| Temperature (Degrees Celsius) | 8.7                                                                               |
| Redox (ORP mV)                | -204.1                                                                            |
| parameters                    | @13:10, DTW:63.62, pH:6.87, temp:8.7, cond:2.15, turb:22.6, DO:0.75, redox:-204.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:15, DTW:63.62, pH:6.87, temp:8.5, cond:2.16, turb:21.4, DO:0.69, redox:-209.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 63.62                                                                             |
| Milliliters Purged (total)       | 2500                                                                              |
| pH                               | 6.87                                                                              |
| Conductivity (mS/cm)             | 2.16                                                                              |
| Turbidity (NTU)                  | 21.4                                                                              |
| Dissolved Oxygen (mg/L)          | 0.69                                                                              |
| Temperature (Degrees Celsius)    | 8.5                                                                               |
| Redox (ORP mV)                   | -209.1                                                                            |
| parameters                       | @13:15, DTW:63.62, pH:6.87, temp:8.5, cond:2.16, turb:21.4, DO:0.69, redox:-209.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:20, DTW:63.62, pH:6.87, temp:8.5, cond:2.15, turb:20.1, DO:0.68, redox:-209.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 63.62                                                                             |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 6.87                                                                              |
| Conductivity (mS/cm)             | 2.15                                                                              |
| Turbidity (NTU)                  | 20.1                                                                              |
| Dissolved Oxygen (mg/L)          | 0.68                                                                              |
| Temperature (Degrees Celsius)    | 8.5                                                                               |
| Redox (ORP mV)                   | -209.5                                                                            |
| parameters                       | @13:20, DTW:63.62, pH:6.87, temp:8.5, cond:2.15, turb:20.1, DO:0.68, redox:-209.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit



@13:25, DTW:63.62, pH:6.87, temp:8.6, cond:2.15, turb:22.4, DO:0.67, redox:-209.7

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:25                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 63.62                                                                             |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 6.87                                                                              |
| Conductivity (mS/cm)             | 2.15                                                                              |
| Turbidity (NTU)                  | 22.4                                                                              |
| Dissolved Oxygen (mg/L)          | 0.67                                                                              |
| Temperature (Degrees Celsius)    | 8.6                                                                               |
| Redox (ORP mV)                   | -209.7                                                                            |
| parameters                       | @13:25, DTW:63.62, pH:6.87, temp:8.6, cond:2.15, turb:22.4, DO:0.67, redox:-209.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 13:25       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 3500        |
| Well Volumes Purged           | 0.66        |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:25 |
| Color         | Clear |
| Notable odors | No    |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to be 'Zu/h' or similar, with a vertical line separating the 'Zu' and 'h' parts.

Signed 2019-12-04 17:59:49 UTC

---

## 2019-12-04, MW-19-125

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-04 15:03:28 UTC by Billy Cobern |
| Updated                                                                                           | 2019-12-04 15:22:12 UTC by Billy Cobern |
| Location                                                                                          | 42.7383597661208, -84.5859699883355     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-12-04                              |
| Well ID                                                                                           | MW-19-125                               |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Cloudy, windy,30's                      |

### Evacuation Details

|                                                                                                                                                                                                                                                                   |               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                  | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                          | 4             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                       | 69.96         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                              | 109.95        |
| Water Column                                                                                                                                                                                                                                                      | 39.99         |
| Gallons in Well                                                                                                                                                                                                                                                   | 25.99         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1\text{foot}$ ] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                      | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                            | Bladder       |
| Sample Method                                                                                                                                                                                                                                                     | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                          | 107           |
| Purge Start                                                                                                                                                                                                                                                       | 09:45         |

### @09:45, DTW:69.96, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 09:45                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 69.96                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @09:45, DTW:69.96, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:50, DTW:69.97, pH:7.68, temp:10.8, cond:1.1, turb:82.7, DO:2.94, redox:-325.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 69.97 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.68  |
| Conductivity (mS/cm)             | 1.1   |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Turbidity (NTU)               | 82.7                                                                              |
| Dissolved Oxygen (mg/L)       | 2.94                                                                              |
| Temperature (Degrees Celsius) | 10.8                                                                              |
| Redox (ORP mV)                | -325.3                                                                            |
| parameters                    | @09:50, DTW:69.97, pH:7.68, temp:10.8, cond:1.1, turb:82.7, DO:2.94, redox:-325.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:55, DTW:69.98, pH:7.58, temp:9.4, cond:1.21, turb:82.1, DO:1.84, redox:-356.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:55                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 69.98                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 7.58                                                                              |
| Conductivity (mS/cm)             | 1.21                                                                              |
| Turbidity (NTU)                  | 82.1                                                                              |
| Dissolved Oxygen (mg/L)          | 1.84                                                                              |
| Temperature (Degrees Celsius)    | 9.4                                                                               |
| Redox (ORP mV)                   | -356.5                                                                            |
| parameters                       | @09:55, DTW:69.98, pH:7.58, temp:9.4, cond:1.21, turb:82.1, DO:1.84, redox:-356.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:00, DTW:69.99, pH:7.58, temp:8.4, cond:1.24, turb:80.2, DO:1.73, redox:-370.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:00                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 69.99                                                                             |
| Milliliters Purged (total)       | 1500                                                                              |
| pH                               | 7.58                                                                              |
| Conductivity (mS/cm)             | 1.24                                                                              |
| Turbidity (NTU)                  | 80.2                                                                              |
| Dissolved Oxygen (mg/L)          | 1.73                                                                              |
| Temperature (Degrees Celsius)    | 8.4                                                                               |
| Redox (ORP mV)                   | -370.9                                                                            |
| parameters                       | @10:00, DTW:69.99, pH:7.58, temp:8.4, cond:1.24, turb:80.2, DO:1.73, redox:-370.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:05, DTW:70, pH:7.57, temp:8.1, cond:1.26, turb:78.8, DO:1.51, redox:-381.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Depth to Water (ft)           | 70                                                                             |
| Milliliters Purged (total)    | 2000                                                                           |
| pH                            | 7.57                                                                           |
| Conductivity (mS/cm)          | 1.26                                                                           |
| Turbidity (NTU)               | 78.8                                                                           |
| Dissolved Oxygen (mg/L)       | 1.51                                                                           |
| Temperature (Degrees Celsius) | 8.1                                                                            |
| Redox (ORP mV)                | -381.5                                                                         |
| parameters                    | @10:05, DTW:70, pH:7.57, temp:8.1, cond:1.26, turb:78.8, DO:1.51, redox:-381.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:10, DTW:70.01, pH:7.58, temp:8, cond:1.27, turb:77.6, DO:1.35, redox:-388.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:10                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 70.01                                                                           |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 7.58                                                                            |
| Conductivity (mS/cm)             | 1.27                                                                            |
| Turbidity (NTU)                  | 77.6                                                                            |
| Dissolved Oxygen (mg/L)          | 1.35                                                                            |
| Temperature (Degrees Celsius)    | 8                                                                               |
| Redox (ORP mV)                   | -388.9                                                                          |
| parameters                       | @10:10, DTW:70.01, pH:7.58, temp:8, cond:1.27, turb:77.6, DO:1.35, redox:-388.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:15, DTW:70.03, pH:7.58, temp:8, cond:1.27, turb:76.3, DO:1.26, redox:-394.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 70.03                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.58                                                                            |
| Conductivity (mS/cm)             | 1.27                                                                            |
| Turbidity (NTU)                  | 76.3                                                                            |
| Dissolved Oxygen (mg/L)          | 1.26                                                                            |
| Temperature (Degrees Celsius)    | 8                                                                               |
| Redox (ORP mV)                   | -394.3                                                                          |
| parameters                       | @10:15, DTW:70.03, pH:7.58, temp:8, cond:1.27, turb:76.3, DO:1.26, redox:-394.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:20, DTW:70.05, pH:7.59, temp:7.6, cond:1.28, turb:72.2, DO:1.08, redox:-399.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 70.05                                                                             |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 7.59                                                                              |
| Conductivity (mS/cm)             | 1.28                                                                              |
| Turbidity (NTU)                  | 72.2                                                                              |
| Dissolved Oxygen (mg/L)          | 1.08                                                                              |
| Temperature (Degrees Celsius)    | 7.6                                                                               |
| Redox (ORP mV)                   | -399.2                                                                            |
| parameters                       | @10:20, DTW:70.05, pH:7.59, temp:7.6, cond:1.28, turb:72.2, DO:1.08, redox:-399.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:25, DTW:70.07, pH:7.59, temp:7.6, cond:1.28, turb:70.2, DO:1.05, redox:-401.3**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:25                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 70.07                                                                             |
| Milliliters Purged (total)       | 4000                                                                              |
| pH                               | 7.59                                                                              |
| Conductivity (mS/cm)             | 1.28                                                                              |
| Turbidity (NTU)                  | 70.2                                                                              |
| Dissolved Oxygen (mg/L)          | 1.05                                                                              |
| Temperature (Degrees Celsius)    | 7.6                                                                               |
| Redox (ORP mV)                   | -401.3                                                                            |
| parameters                       | @10:25, DTW:70.07, pH:7.59, temp:7.6, cond:1.28, turb:70.2, DO:1.05, redox:-401.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:30, DTW:70.09, pH:7.58, temp:7.8, cond:1.27, turb:67.1, DO:1.03, redox:-404.4**

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 10:30  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 100    |
| Depth to Water (ft)              | 70.09  |
| Milliliters Purged (total)       | 4500   |
| pH                               | 7.58   |
| Conductivity (mS/cm)             | 1.27   |
| Turbidity (NTU)                  | 67.1   |
| Dissolved Oxygen (mg/L)          | 1.03   |
| Temperature (Degrees Celsius)    | 7.8    |
| Redox (ORP mV)                   | -404.4 |

parameters

@10:30, DTW:70.09, pH:7.58, temp:7.8, cond:1.27, turb:67.1, DO:1.03, redox:-404.4

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 10:30 |
|-----------|-------|

|                               |             |
|-------------------------------|-------------|
| Total Volume Measured (units) | Milliliters |
|-------------------------------|-------------|

|                          |      |
|--------------------------|------|
| Total Milliliters Purged | 4500 |
|--------------------------|------|

|                     |      |
|---------------------|------|
| Well Volumes Purged | 0.05 |
|---------------------|------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 10:30 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |    |
|---------------|----|
| Notable odors | No |
|---------------|----|

### 1,4 Dioxane low level EPA 522

|                     |                               |
|---------------------|-------------------------------|
| Constituent Sampled | 1,4 Dioxane low level EPA 522 |
|---------------------|-------------------------------|

|                |            |
|----------------|------------|
| Container Type | 40 mL Vial |
|----------------|------------|

|                      |   |
|----------------------|---|
| Number of Containers | 3 |
|----------------------|---|

|              |     |
|--------------|-----|
| Preservative | HCL |
|--------------|-----|

### Well Information

|               |         |
|---------------|---------|
| Well Location | Plant 2 |
|---------------|---------|

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature

A handwritten signature in black ink, appearing to be '33/L' or similar, written in a cursive style.

Signed 2019-12-04 15:07:19 UTC

## 2019-06-06, MW-22, MW-22

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 15:39:19 EDT by Gary Schafer    |
| Updated                                                                                           | 2019-06-06 16:33:48 EDT by Christine Gregg |
| Location                                                                                          | 42.7449803, -84.58388373                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Gary Schafer                               |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-22                                      |
| Well ID                                                                                           | MW-22                                      |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Sun and clouds temp 76                     |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 50            |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder       |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                | 15:30         |

### @15:35, DTW:66.73, pH:6.84, temp:16.2, cond:3.23, turb:69.2, DO:0.54, redox:42.9

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 15:35                                                                            |
| Rate (mL/min)                 | 150                                                                              |
| Depth to Water (ft)           | 66.73                                                                            |
| pH                            | 6.84                                                                             |
| Conductivity (mS/cm)          | 3.23                                                                             |
| Turbidity (NTU)               | 69.2                                                                             |
| Dissolved Oxygen (mg/L)       | 0.54                                                                             |
| Temperature (Degrees Celsius) | 16.2                                                                             |
| Redox (ORP mV)                | 42.9                                                                             |
| parameters                    | @15:35, DTW:66.73, pH:6.84, temp:16.2, cond:3.23, turb:69.2, DO:0.54, redox:42.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:40, DTW:66.73, pH:6.85, temp:16.5, cond:3.24, turb:42.4, DO:0.41, redox:39.6

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 66.73 |
| pH                               | 6.85  |



|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 3.24                                                                             |
| Turbidity (NTU)               | 42.4                                                                             |
| Dissolved Oxygen (mg/L)       | 0.41                                                                             |
| Temperature (Degrees Celsius) | 16.5                                                                             |
| Redox (ORP mV)                | 39.6                                                                             |
| parameters                    | @15:40, DTW:66.73, pH:6.85, temp:16.5, cond:3.24, turb:42.4, DO:0.41, redox:39.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:45, DTW:50.35, pH:6.86, temp:16.2, cond:3.25, turb:46.6, DO:0.34, redox:33.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 50.35                                                                            |
| pH                               | 6.86                                                                             |
| Conductivity (mS/cm)             | 3.25                                                                             |
| Turbidity (NTU)                  | 46.6                                                                             |
| Dissolved Oxygen (mg/L)          | 0.34                                                                             |
| Temperature (Degrees Celsius)    | 16.2                                                                             |
| Redox (ORP mV)                   | 33.5                                                                             |
| parameters                       | @15:45, DTW:50.35, pH:6.86, temp:16.2, cond:3.25, turb:46.6, DO:0.34, redox:33.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:50, DTW:50.35, pH:6.87, temp:16.4, cond:3.25, turb:27, DO:0.3, redox:28.4**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 15:50                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 150                                                                           |
| Depth to Water (ft)              | 50.35                                                                         |
| pH                               | 6.87                                                                          |
| Conductivity (mS/cm)             | 3.25                                                                          |
| Turbidity (NTU)                  | 27                                                                            |
| Dissolved Oxygen (mg/L)          | 0.3                                                                           |
| Temperature (Degrees Celsius)    | 16.4                                                                          |
| Redox (ORP mV)                   | 28.4                                                                          |
| parameters                       | @15:50, DTW:50.35, pH:6.87, temp:16.4, cond:3.25, turb:27, DO:0.3, redox:28.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:55, DTW:50.35, pH:6.87, temp:16.4, cond:3.26, turb:37.7, DO:0.29, redox:24.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 50.35 |

|                               |      |
|-------------------------------|------|
| pH                            | 6.87 |
| Conductivity (mS/cm)          | 3.26 |
| Turbidity (NTU)               | 37.7 |
| Dissolved Oxygen (mg/L)       | 0.29 |
| Temperature (Degrees Celsius) | 16.4 |
| Redox (ORP mV)                | 24.6 |

parameters @15:55, DTW:50.35, pH:6.87, temp:16.4, cond:3.26, turb:37.7, DO:0.29, redox:24.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:00, DTW:50.35, pH:6.88, temp:16.4, cond:3.28, turb:23.3, DO:0.27, redox:21.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 16:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 50.35 |
| pH                               | 6.88  |
| Conductivity (mS/cm)             | 3.28  |
| Turbidity (NTU)                  | 23.3  |
| Dissolved Oxygen (mg/L)          | 0.27  |
| Temperature (Degrees Celsius)    | 16.4  |
| Redox (ORP mV)                   | 21.2  |

parameters @16:00, DTW:50.35, pH:6.88, temp:16.4, cond:3.28, turb:23.3, DO:0.27, redox:21.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:05, DTW:50.35, pH:6.89, temp:16.1, cond:3.3, turb:14.3, DO:0.29, redox:20.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 16:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 50.35 |
| pH                               | 6.89  |
| Conductivity (mS/cm)             | 3.3   |
| Turbidity (NTU)                  | 14.3  |
| Dissolved Oxygen (mg/L)          | 0.29  |
| Temperature (Degrees Celsius)    | 16.1  |
| Redox (ORP mV)                   | 20.1  |

parameters @16:05, DTW:50.35, pH:6.89, temp:16.1, cond:3.3, turb:14.3, DO:0.29, redox:20.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:10, DTW:50.35, pH:6.88, temp:15.9, cond:3.29, turb:13.6, DO:0.51, redox:18.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 16:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 50.35                                                                            |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.88                                                                             |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 3.29                                                                             |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 13.6                                                                             |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.51                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 15.9                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 18.9                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @16:10, DTW:50.35, pH:6.88, temp:15.9, cond:3.29, turb:13.6, DO:0.51, redox:18.9 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |

### **@16:15, DTW:50.35, pH:6.89, temp:15.5, cond:3.29, turb:10.4, DO:0.27, redox:17.8**

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 16:15                                                                            |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                                |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 150                                                                              |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 50.35                                                                            |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.89                                                                             |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 3.29                                                                             |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 10.4                                                                             |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.27                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 15.5                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 17.8                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @16:15, DTW:50.35, pH:6.89, temp:15.5, cond:3.29, turb:10.4, DO:0.27, redox:17.8 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |

### **@16:20, DTW:50.35, pH:6.9, temp:16.1, cond:3.28, turb:9.97, DO:0.28, redox:15.5**

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 16:20                                                                           |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 5                                                                               |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 150                                                                             |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 50.35                                                                           |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.9                                                                             |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 3.28                                                                            |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 9.97                                                                            |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.28                                                                            |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 16.1                                                                            |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 15.5                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @16:20, DTW:50.35, pH:6.9, temp:16.1, cond:3.28, turb:9.97, DO:0.28, redox:15.5 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                 |

### **@16:25, DTW:50.35, pH:6.9, temp:16, cond:3.29, turb:13.6, DO:0.25, redox:13.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 16:25 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Rate (mL/min)                 | 150                                                                           |
| Depth to Water (ft)           | 50.35                                                                         |
| pH                            | 6.9                                                                           |
| Conductivity (mS/cm)          | 3.29                                                                          |
| Turbidity (NTU)               | 13.6                                                                          |
| Dissolved Oxygen (mg/L)       | 0.25                                                                          |
| Temperature (Degrees Celsius) | 16                                                                            |
| Redox (ORP mV)                | 13.8                                                                          |
| parameters                    | @16:25, DTW:50.35, pH:6.9, temp:16, cond:3.29, turb:13.6, DO:0.25, redox:13.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:30, DTW:50.35, pH:6.9, temp:15.8, cond:3.28, turb:11.1, DO:0.27, redox:12.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 16:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 50.35                                                                           |
| pH                               | 6.9                                                                             |
| Conductivity (mS/cm)             | 3.28                                                                            |
| Turbidity (NTU)                  | 11.1                                                                            |
| Dissolved Oxygen (mg/L)          | 0.27                                                                            |
| Temperature (Degrees Celsius)    | 15.8                                                                            |
| Redox (ORP mV)                   | 12.2                                                                            |
| parameters                       | @16:30, DTW:50.35, pH:6.9, temp:15.8, cond:3.28, turb:11.1, DO:0.27, redox:12.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 16:31   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 3       |

### **Sample Information**

|               |                 |
|---------------|-----------------|
| Sample Time   | 16:31           |
| Color         | Slight brownish |
| Notable odors | None            |

### **Well Information**

|                          |       |
|--------------------------|-------|
| Well Location            | MW-22 |
| Condition of Well        | Good  |
| Well Locked at Arrival   | Yes   |
| Well Locked at Departure | Yes   |

Signature

Gary Schafen

Signed 2019-06-06 20:33:46 UTC

---

## 2019-06-12, MW-23, MW-23

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 16:18:15 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-12 16:38:20 EDT by Christine Gregg |
| Location                                                                                          | 42.74521356, -84.58367921                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-12                                 |
| Well Identification                                                                               | MW-23                                      |
| Well ID                                                                                           | MW-23                                      |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | Dup-08                                     |
| Weather                                                                                           | Cloudy, 70F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 49.31         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 61.34         |
| Water Column                                                                                                                                                                                                                                               | 12.03         |
| Gallons in Well                                                                                                                                                                                                                                            | 1.95          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder       |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                   | 59.34         |
| Purge Start                                                                                                                                                                                                                                                | 16:15         |

### @16:20, DTW:49.5, pH:7.07, temp:15.2, cond:1.26, turb:26.8, DO:0.36, redox:-85.5

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 16:20                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 49.5                                                                             |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 7.07                                                                             |
| Conductivity (mS/cm)          | 1.26                                                                             |
| Turbidity (NTU)               | 26.8                                                                             |
| Dissolved Oxygen (mg/L)       | 0.36                                                                             |
| Temperature (Degrees Celsius) | 15.2                                                                             |
| Redox (ORP mV)                | -85.5                                                                            |
| parameters                    | @16:20, DTW:49.5, pH:7.07, temp:15.2, cond:1.26, turb:26.8, DO:0.36, redox:-85.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@16:25, DTW:49.52, pH:7.1, temp:15, cond:1.26, turb:13.8, DO:0.29, redox:-90.6**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 16:25                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 49.52                                                                          |
| Milliliters Purged (total)       | 2000                                                                           |
| pH                               | 7.1                                                                            |
| Conductivity (mS/cm)             | 1.26                                                                           |
| Turbidity (NTU)                  | 13.8                                                                           |
| Dissolved Oxygen (mg/L)          | 0.29                                                                           |
| Temperature (Degrees Celsius)    | 15                                                                             |
| Redox (ORP mV)                   | -90.6                                                                          |
| parameters                       | @16:25, DTW:49.52, pH:7.1, temp:15, cond:1.26, turb:13.8, DO:0.29, redox:-90.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@16:30, DTW:49.52, pH:7.1, temp:14.7, cond:1.25, turb:5.38, DO:0.29, redox:-90**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 16:30                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 49.52                                                                          |
| Milliliters Purged (total)       | 3000                                                                           |
| pH                               | 7.1                                                                            |
| Conductivity (mS/cm)             | 1.25                                                                           |
| Turbidity (NTU)                  | 5.38                                                                           |
| Dissolved Oxygen (mg/L)          | 0.29                                                                           |
| Temperature (Degrees Celsius)    | 14.7                                                                           |
| Redox (ORP mV)                   | -90                                                                            |
| parameters                       | @16:30, DTW:49.52, pH:7.1, temp:14.7, cond:1.25, turb:5.38, DO:0.29, redox:-90 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@16:35, DTW:49.52, pH:7.1, temp:14.7, cond:1.24, turb:5.93, DO:0.3, redox:-89.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 16:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 49.52 |
| Milliliters Purged (total)       | 4000  |
| pH                               | 7.1   |
| Conductivity (mS/cm)             | 1.24  |
| Turbidity (NTU)                  | 5.93  |
| Dissolved Oxygen (mg/L)          | 0.3   |
| Temperature (Degrees Celsius)    | 14.7  |
| Redox (ORP mV)                   | -89.6 |

parameters

@16:35, DTW:49.52, pH:7.1, temp:14.7, cond:1.24, turb:5.93, DO:0.3, redox:-89.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 16:50 |
|-----------|-------|

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 16:40 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |      |
|---------------|------|
| Notable odors | None |
|---------------|------|

### Metals, Total

|                     |               |
|---------------------|---------------|
| Constituent Sampled | Metals, Total |
|---------------------|---------------|

|                |                |
|----------------|----------------|
| Container Type | 125 mL Plastic |
|----------------|----------------|

|                      |   |
|----------------------|---|
| Number of Containers | 1 |
|----------------------|---|

|              |      |
|--------------|------|
| Preservative | HNO3 |
|--------------|------|

### PFAS

|                     |      |
|---------------------|------|
| Constituent Sampled | PFAS |
|---------------------|------|

|                |                |
|----------------|----------------|
| Container Type | 250 mL Plastic |
|----------------|----------------|

|                      |   |
|----------------------|---|
| Number of Containers | 2 |
|----------------------|---|

|              |      |
|--------------|------|
| Preservative | None |
|--------------|------|

### Well Information

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |    |
|------------------------|----|
| Well Locked at Arrival | No |
|------------------------|----|

|                          |    |
|--------------------------|----|
| Well Locked at Departure | No |
|--------------------------|----|

Signature

A handwritten signature in black ink, appearing to be 'Amal' followed by a stylized flourish.

Signed 2019-06-12 20:20:31 UTC



## 2019-12-06, MW-23

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-06 18:08:59 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-06 18:56:24 UTC by Austin Westhuis |
| Location                                                                                          | 42.7452411828961, -84.5836569183362        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-06                                 |
| Well ID                                                                                           | MW-23                                      |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | NA                                         |
| Weather                                                                                           | Cloudy, 35F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 48.34         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 61.29         |
| Water Column                                                                                                                                                                                                                                              | 12.95         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.1           |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 58.79         |
| Purge Start                                                                                                                                                                                                                                               | 13:25         |

### @13:30, DTW:48.42, pH:7.51, temp:11.8, cond:0.019, turb:43.2, DO:1.52, redox:-43.9

|                               |                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------|
| Reading Time                  | 13:30                                                                              |
| Rate (mL/min)                 | 200                                                                                |
| Depth to Water (ft)           | 48.42                                                                              |
| Milliliters Purged (total)    | 1000                                                                               |
| pH                            | 7.51                                                                               |
| Conductivity (mS/cm)          | 0.019                                                                              |
| Turbidity (NTU)               | 43.2                                                                               |
| Dissolved Oxygen (mg/L)       | 1.52                                                                               |
| Temperature (Degrees Celsius) | 11.8                                                                               |
| Redox (ORP mV)                | -43.9                                                                              |
| parameters                    | @13:30, DTW:48.42, pH:7.51, temp:11.8, cond:0.019, turb:43.2, DO:1.52, redox:-43.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:35, DTW:48.42, pH:7.25, temp:11.4, cond:1.1, turb:22.6, DO:1.23, redox:-47.2

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 48.42                                                                            |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 7.25                                                                             |
| Conductivity (mS/cm)             | 1.1                                                                              |
| Turbidity (NTU)                  | 22.6                                                                             |
| Dissolved Oxygen (mg/L)          | 1.23                                                                             |
| Temperature (Degrees Celsius)    | 11.4                                                                             |
| Redox (ORP mV)                   | -47.2                                                                            |
| parameters                       | @13:35, DTW:48.42, pH:7.25, temp:11.4, cond:1.1, turb:22.6, DO:1.23, redox:-47.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:48.42, pH:7.24, temp:11.4, cond:1.11, turb:14.7, DO:1.1, redox:-49.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 48.42                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.24                                                                             |
| Conductivity (mS/cm)             | 1.11                                                                             |
| Turbidity (NTU)                  | 14.7                                                                             |
| Dissolved Oxygen (mg/L)          | 1.1                                                                              |
| Temperature (Degrees Celsius)    | 11.4                                                                             |
| Redox (ORP mV)                   | -49.2                                                                            |
| parameters                       | @13:40, DTW:48.42, pH:7.24, temp:11.4, cond:1.11, turb:14.7, DO:1.1, redox:-49.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:45, DTW:48.42, pH:7.23, temp:11.4, cond:1.12, turb:9.86, DO:0.91, redox:-53.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:45                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 48.42                                                                             |
| Milliliters Purged (total)       | 4000                                                                              |
| pH                               | 7.23                                                                              |
| Conductivity (mS/cm)             | 1.12                                                                              |
| Turbidity (NTU)                  | 9.86                                                                              |
| Dissolved Oxygen (mg/L)          | 0.91                                                                              |
| Temperature (Degrees Celsius)    | 11.4                                                                              |
| Redox (ORP mV)                   | -53.5                                                                             |
| parameters                       | @13:45, DTW:48.42, pH:7.23, temp:11.4, cond:1.12, turb:9.86, DO:0.91, redox:-53.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:50, DTW:48.42, pH:7.22, temp:11.5, cond:1.12, turb:4.82, DO:0.92, redox:-53.3**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:50                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 48.42                                                                             |
| Milliliters Purged (total)       | 5000                                                                              |
| pH                               | 7.22                                                                              |
| Conductivity (mS/cm)             | 1.12                                                                              |
| Turbidity (NTU)                  | 4.82                                                                              |
| Dissolved Oxygen (mg/L)          | 0.92                                                                              |
| Temperature (Degrees Celsius)    | 11.5                                                                              |
| Redox (ORP mV)                   | -53.3                                                                             |
| parameters                       | @13:50, DTW:48.42, pH:7.22, temp:11.5, cond:1.12, turb:4.82, DO:0.92, redox:-53.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:55, DTW:48.42, pH:7.22, temp:11.5, cond:1.12, turb:2.89, DO:0.92, redox:-55.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:55                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 48.42                                                                             |
| Milliliters Purged (total)       | 6000                                                                              |
| pH                               | 7.22                                                                              |
| Conductivity (mS/cm)             | 1.12                                                                              |
| Turbidity (NTU)                  | 2.89                                                                              |
| Dissolved Oxygen (mg/L)          | 0.92                                                                              |
| Temperature (Degrees Celsius)    | 11.5                                                                              |
| Redox (ORP mV)                   | -55.1                                                                             |
| parameters                       | @13:55, DTW:48.42, pH:7.22, temp:11.5, cond:1.12, turb:2.89, DO:0.92, redox:-55.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 14:05 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:00 |
| Color         | Clear |
| Notable odors | None  |

## PFAS

|                     |                |
|---------------------|----------------|
| Constituent Sampled | PFAS           |
| Container Type      | 250 mL Plastic |

|                      |      |
|----------------------|------|
| Number of Containers | 2    |
| Preservative         | None |

### Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to read "And W". The signature is fluid and cursive, with the first part being a large loop and the second part being a smaller, more distinct "W" followed by a horizontal stroke.

Signed 2019-12-06 18:11:15 UTC

## 2019-06-12, MW-91-2, MW-91-2

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-12 09:47:56 EDT by Austin Westhuis |
| Updated                                                                                           | 2019-06-12 10:18:50 EDT by Christine Gregg |
| Location                                                                                          | 42.74529969, -84.58472821                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-06-12                                 |
| Well Identification                                                                               | MW-91-2                                    |
| Well ID                                                                                           | MW-91-2                                    |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | None                                       |
| Weather                                                                                           | Sunny, 70F                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 4             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 57.44         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 76.65         |
| Water Column                                                                                                                                                                                                                                           | 19.21         |
| Gallons in Well                                                                                                                                                                                                                                        | 12.49         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Bladder       |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 74.15         |
| Purge Start                                                                                                                                                                                                                                            | 09:45         |

### @09:50, DTW:57.81, pH:7.68, temp:15.4, cond:0.43, turb:12.8, DO:4.88, redox:161.9

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 09:50                                                                             |
| Rate (mL/min)                 | 200                                                                               |
| Depth to Water (ft)           | 57.81                                                                             |
| Milliliters Purged (total)    | 1000                                                                              |
| pH                            | 7.68                                                                              |
| Conductivity (mS/cm)          | 0.43                                                                              |
| Turbidity (NTU)               | 12.8                                                                              |
| Dissolved Oxygen (mg/L)       | 4.88                                                                              |
| Temperature (Degrees Celsius) | 15.4                                                                              |
| Redox (ORP mV)                | 161.9                                                                             |
| parameters                    | @09:50, DTW:57.81, pH:7.68, temp:15.4, cond:0.43, turb:12.8, DO:4.88, redox:161.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:55, DTW:57.89, pH:7.67, temp:15.3, cond:0.429, turb:7.93, DO:4.94, redox:165.1**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 09:55                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 57.89                                                                              |
| Milliliters Purged (total)       | 2000                                                                               |
| pH                               | 7.67                                                                               |
| Conductivity (mS/cm)             | 0.429                                                                              |
| Turbidity (NTU)                  | 7.93                                                                               |
| Dissolved Oxygen (mg/L)          | 4.94                                                                               |
| Temperature (Degrees Celsius)    | 15.3                                                                               |
| Redox (ORP mV)                   | 165.1                                                                              |
| parameters                       | @09:55, DTW:57.89, pH:7.67, temp:15.3, cond:0.429, turb:7.93, DO:4.94, redox:165.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:00, DTW:57.89, pH:7.67, temp:15.3, cond:0.429, turb:5.44, DO:5.05, redox:167.9**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 10:00                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 57.89                                                                              |
| Milliliters Purged (total)       | 3000                                                                               |
| pH                               | 7.67                                                                               |
| Conductivity (mS/cm)             | 0.429                                                                              |
| Turbidity (NTU)                  | 5.44                                                                               |
| Dissolved Oxygen (mg/L)          | 5.05                                                                               |
| Temperature (Degrees Celsius)    | 15.3                                                                               |
| Redox (ORP mV)                   | 167.9                                                                              |
| parameters                       | @10:00, DTW:57.89, pH:7.67, temp:15.3, cond:0.429, turb:5.44, DO:5.05, redox:167.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:05, DTW:57.89, pH:7.66, temp:15.3, cond:0.429, turb:4.33, DO:4.99, redox:169.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 57.89 |
| Milliliters Purged (total)       | 4000  |
| pH                               | 7.66  |
| Conductivity (mS/cm)             | 0.429 |
| Turbidity (NTU)                  | 4.33  |
| Dissolved Oxygen (mg/L)          | 4.99  |
| Temperature (Degrees Celsius)    | 15.3  |
| Redox (ORP mV)                   | 169.4 |

parameters

@10:05, DTW:57.89, pH:7.66, temp:15.3, cond:0.429, turb:4.33, DO:4.99, redox:169.4

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@10:10, DTW:57.89, pH:7.66, temp:15.3, cond:0.429, turb:3.35, DO:4.93, redox:171.1**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 10:10                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 57.89                                                                              |
| Milliliters Purged (total)       | 5000                                                                               |
| pH                               | 7.66                                                                               |
| Conductivity (mS/cm)             | 0.429                                                                              |
| Turbidity (NTU)                  | 3.35                                                                               |
| Dissolved Oxygen (mg/L)          | 4.93                                                                               |
| Temperature (Degrees Celsius)    | 15.3                                                                               |
| Redox (ORP mV)                   | 171.1                                                                              |
| parameters                       | @10:10, DTW:57.89, pH:7.66, temp:15.3, cond:0.429, turb:3.35, DO:4.93, redox:171.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 10:25 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:15 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Metals, Total

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | Metals, Total  |
| Container Type       | 125 mL Plastic |
| Number of Containers | 1              |
| Preservative         | HNO3           |

## Hexavalent Chromium

|                      |                     |
|----------------------|---------------------|
| Constituent Sampled  | Hexavalent Chromium |
| Container Type       | 125 mL Plastic      |
| Number of Containers | 1                   |
| Preservative         | None                |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |                                                                                          |
|--------------------------|------------------------------------------------------------------------------------------|
| Condition of Well        | Poor. The flush mount could be reconstructed and a new cap or j-plug could be installed. |
| Well Locked at Arrival   | No                                                                                       |
| Well Locked at Departure | No                                                                                       |
| Signature                |                                                                                          |

A handwritten signature in black ink, appearing to read "And all", written in a cursive style.

Signed 2019-06-12 13:51:51 UTC



## 2019-12-06, MW-91-2R

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-06 19:25:04 UTC by Austin Westhuis |
| Updated                                                                                           | 2019-12-06 19:50:40 UTC by Austin Westhuis |
| Location                                                                                          | 42.7452352317448, -84.5847330708844        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Austin Westhuis                            |
| Date                                                                                              | 2019-12-06                                 |
| Well ID                                                                                           | MW-91-2R                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | NA                                         |
| Weather                                                                                           | Cloudy, 35F                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 59.7          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 84.2          |
| Water Column                                                                                                                                                                                                                                              | 24.5          |
| Gallons in Well                                                                                                                                                                                                                                           | 3.98          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 81.7          |
| Purge Start                                                                                                                                                                                                                                               | 14:25         |

### @14:30, DTW:59.7, pH:7.38, temp:10.1, cond:0.97, turb:176, DO:0.76, redox:-78.9

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 14:30                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 59.7                                                                            |
| Milliliters Purged (total)    | 1000                                                                            |
| pH                            | 7.38                                                                            |
| Conductivity (mS/cm)          | 0.97                                                                            |
| Turbidity (NTU)               | 176                                                                             |
| Dissolved Oxygen (mg/L)       | 0.76                                                                            |
| Temperature (Degrees Celsius) | 10.1                                                                            |
| Redox (ORP mV)                | -78.9                                                                           |
| parameters                    | @14:30, DTW:59.7, pH:7.38, temp:10.1, cond:0.97, turb:176, DO:0.76, redox:-78.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:35, DTW:59.7, pH:7.35, temp:12.7, cond:1.05, turb:76.2, DO:0.42, redox:-96.3

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 59.7                                                                             |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 7.35                                                                             |
| Conductivity (mS/cm)             | 1.05                                                                             |
| Turbidity (NTU)                  | 76.2                                                                             |
| Dissolved Oxygen (mg/L)          | 0.42                                                                             |
| Temperature (Degrees Celsius)    | 12.7                                                                             |
| Redox (ORP mV)                   | -96.3                                                                            |
| parameters                       | @14:35, DTW:59.7, pH:7.35, temp:12.7, cond:1.05, turb:76.2, DO:0.42, redox:-96.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:40, DTW:59.7, pH:7.33, temp:12.5, cond:1.07, turb:21.2, DO:0.39, redox:-97.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 59.7                                                                             |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.33                                                                             |
| Conductivity (mS/cm)             | 1.07                                                                             |
| Turbidity (NTU)                  | 21.2                                                                             |
| Dissolved Oxygen (mg/L)          | 0.39                                                                             |
| Temperature (Degrees Celsius)    | 12.5                                                                             |
| Redox (ORP mV)                   | -97.4                                                                            |
| parameters                       | @14:40, DTW:59.7, pH:7.33, temp:12.5, cond:1.07, turb:21.2, DO:0.39, redox:-97.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:45, DTW:59.7, pH:7.3, temp:12.8, cond:1.09, turb:14.3, DO:0.37, redox:-98**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:45                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 59.7                                                                          |
| Milliliters Purged (total)       | 4000                                                                          |
| pH                               | 7.3                                                                           |
| Conductivity (mS/cm)             | 1.09                                                                          |
| Turbidity (NTU)                  | 14.3                                                                          |
| Dissolved Oxygen (mg/L)          | 0.37                                                                          |
| Temperature (Degrees Celsius)    | 12.8                                                                          |
| Redox (ORP mV)                   | -98                                                                           |
| parameters                       | @14:45, DTW:59.7, pH:7.3, temp:12.8, cond:1.09, turb:14.3, DO:0.37, redox:-98 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:50, DTW:59.7, pH:7.27, temp:12.7, cond:1.1, turb:11.7, DO:0.36, redox:-99.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:50                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 59.7                                                                            |
| Milliliters Purged (total)       | 5000                                                                            |
| pH                               | 7.27                                                                            |
| Conductivity (mS/cm)             | 1.1                                                                             |
| Turbidity (NTU)                  | 11.7                                                                            |
| Dissolved Oxygen (mg/L)          | 0.36                                                                            |
| Temperature (Degrees Celsius)    | 12.7                                                                            |
| Redox (ORP mV)                   | -99.4                                                                           |
| parameters                       | @14:50, DTW:59.7, pH:7.27, temp:12.7, cond:1.1, turb:11.7, DO:0.36, redox:-99.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:55 |
| Color         | Clear |
| Notable odors | None  |

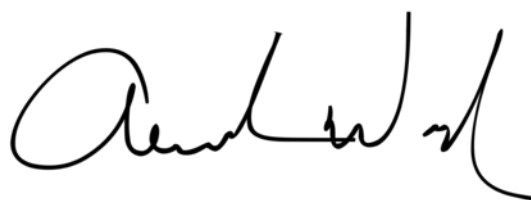
### PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

### Well Information

|                          |      |
|--------------------------|------|
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, appearing to be 'Andrew H', written in a cursive style.

Signed 2019-12-06 19:27:00 UTC

---

## 2019-06-06, MW-91-5, MW-91-5

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 12:57:13 EDT by Gary Schafer    |
| Updated                                                                                           | 2019-06-06 13:56:40 EDT by Christine Gregg |
| Location                                                                                          | 42.74238015, -84.59032229                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Gary Schafer                               |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-91-5                                    |
| Well ID                                                                                           | MW-91-5                                    |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Partly cloudy temp 68                      |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 60.72         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder       |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                   | 66.84         |
| Purge Start                                                                                                                                                                                                                                                | 12:50         |

### @12:55, DTW:66.73, pH:7.11, temp:18.3, cond:1.26, turb:463, DO:1.8, redox:-57.6

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 12:55                                                                           |
| Rate (mL/min)                 | 150                                                                             |
| Depth to Water (ft)           | 66.73                                                                           |
| pH                            | 7.11                                                                            |
| Conductivity (mS/cm)          | 1.26                                                                            |
| Turbidity (NTU)               | 463                                                                             |
| Dissolved Oxygen (mg/L)       | 1.8                                                                             |
| Temperature (Degrees Celsius) | 18.3                                                                            |
| Redox (ORP mV)                | -57.6                                                                           |
| parameters                    | @12:55, DTW:66.73, pH:7.11, temp:18.3, cond:1.26, turb:463, DO:1.8, redox:-57.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:00, DTW:66.73, pH:7.11, temp:19.7, cond:1.25, turb:504, DO:0.88, redox:-66.4

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 66.73 |

|                               |       |
|-------------------------------|-------|
| pH                            | 7.11  |
| Conductivity (mS/cm)          | 1.25  |
| Turbidity (NTU)               | 504   |
| Dissolved Oxygen (mg/L)       | 0.88  |
| Temperature (Degrees Celsius) | 19.7  |
| Redox (ORP mV)                | -66.4 |

parameters @13:00, DTW:66.73, pH:7.11, temp:19.7, cond:1.25, turb:504, DO:0.88, redox:-66.4

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:05, DTW:66.73, pH:7.11, temp:20, cond:1.27, turb:476, DO:0.62, redox:-68.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 66.73 |
| pH                               | 7.11  |
| Conductivity (mS/cm)             | 1.27  |
| Turbidity (NTU)                  | 476   |
| Dissolved Oxygen (mg/L)          | 0.62  |
| Temperature (Degrees Celsius)    | 20    |
| Redox (ORP mV)                   | -68.5 |

parameters @13:05, DTW:66.73, pH:7.11, temp:20, cond:1.27, turb:476, DO:0.62, redox:-68.5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:10, DTW:66.73, pH:7.11, temp:19.5, cond:1.27, turb:380, DO:0.55, redox:-69.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |
| Depth to Water (ft)              | 66.73 |
| pH                               | 7.11  |
| Conductivity (mS/cm)             | 1.27  |
| Turbidity (NTU)                  | 380   |
| Dissolved Oxygen (mg/L)          | 0.55  |
| Temperature (Degrees Celsius)    | 19.5  |
| Redox (ORP mV)                   | -69.1 |

parameters @13:10, DTW:66.73, pH:7.11, temp:19.5, cond:1.27, turb:380, DO:0.55, redox:-69.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:15, DTW:66.73, pH:7.12, temp:17.2, cond:1.26, turb:318, DO:0.5, redox:-66.6

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 150   |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Depth to Water (ft)           | 66.73                                                                           |
| pH                            | 7.12                                                                            |
| Conductivity (mS/cm)          | 1.26                                                                            |
| Turbidity (NTU)               | 318                                                                             |
| Dissolved Oxygen (mg/L)       | 0.5                                                                             |
| Temperature (Degrees Celsius) | 17.2                                                                            |
| Redox (ORP mV)                | -66.6                                                                           |
| parameters                    | @13:15, DTW:66.73, pH:7.12, temp:17.2, cond:1.26, turb:318, DO:0.5, redox:-66.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:20, DTW:66.73, pH:7.12, temp:17.1, cond:1.27, turb:211, DO:0.44, redox:-67.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 66.73                                                                            |
| pH                               | 7.12                                                                             |
| Conductivity (mS/cm)             | 1.27                                                                             |
| Turbidity (NTU)                  | 211                                                                              |
| Dissolved Oxygen (mg/L)          | 0.44                                                                             |
| Temperature (Degrees Celsius)    | 17.1                                                                             |
| Redox (ORP mV)                   | -67.7                                                                            |
| parameters                       | @13:20, DTW:66.73, pH:7.12, temp:17.1, cond:1.27, turb:211, DO:0.44, redox:-67.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:25, DTW:66.73, pH:7.11, temp:15.4, cond:1.27, turb:299, DO:0.73, redox:-66.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 150                                                                              |
| Depth to Water (ft)              | 66.73                                                                            |
| pH                               | 7.11                                                                             |
| Conductivity (mS/cm)             | 1.27                                                                             |
| Turbidity (NTU)                  | 299                                                                              |
| Dissolved Oxygen (mg/L)          | 0.73                                                                             |
| Temperature (Degrees Celsius)    | 15.4                                                                             |
| Redox (ORP mV)                   | -66.7                                                                            |
| parameters                       | @13:25, DTW:66.73, pH:7.11, temp:15.4, cond:1.27, turb:299, DO:0.73, redox:-66.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:30, DTW:66.73, pH:7.13, temp:16.6, cond:1.26, turb:95, DO:0.37, redox:-68.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:30 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 150                                                                             |
| Depth to Water (ft)           | 66.73                                                                           |
| pH                            | 7.13                                                                            |
| Conductivity (mS/cm)          | 1.26                                                                            |
| Turbidity (NTU)               | 95                                                                              |
| Dissolved Oxygen (mg/L)       | 0.37                                                                            |
| Temperature (Degrees Celsius) | 16.6                                                                            |
| Redox (ORP mV)                | -68.7                                                                           |
| parameters                    | @13:30, DTW:66.73, pH:7.13, temp:16.6, cond:1.26, turb:95, DO:0.37, redox:-68.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:35, DTW:66.73, pH:7.13, temp:17, cond:1.27, turb:65.6, DO:0.33, redox:-68.7**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 150                                                                             |
| Depth to Water (ft)              | 66.73                                                                           |
| pH                               | 7.13                                                                            |
| Conductivity (mS/cm)             | 1.27                                                                            |
| Turbidity (NTU)                  | 65.6                                                                            |
| Dissolved Oxygen (mg/L)          | 0.33                                                                            |
| Temperature (Degrees Celsius)    | 17                                                                              |
| Redox (ORP mV)                   | -68.7                                                                           |
| parameters                       | @13:35, DTW:66.73, pH:7.13, temp:17, cond:1.27, turb:65.6, DO:0.33, redox:-68.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:66.73, pH:7.13, temp:16.8, cond:1.27, turb:37.4, DO:0.33, redox:-67.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 66.73                                                                             |
| pH                               | 7.13                                                                              |
| Conductivity (mS/cm)             | 1.27                                                                              |
| Turbidity (NTU)                  | 37.4                                                                              |
| Dissolved Oxygen (mg/L)          | 0.33                                                                              |
| Temperature (Degrees Celsius)    | 16.8                                                                              |
| Redox (ORP mV)                   | -67.9                                                                             |
| parameters                       | @13:40, DTW:66.73, pH:7.13, temp:16.8, cond:1.27, turb:37.4, DO:0.33, redox:-67.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:45, DTW:66.73, pH:7.14, temp:15.7, cond:1.27, turb:26.8, DO:0.38, redox:-66.9**

|              |       |
|--------------|-------|
| Reading Time | 13:45 |
|--------------|-------|



|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 66.73                                                                             |
| pH                               | 7.14                                                                              |
| Conductivity (mS/cm)             | 1.27                                                                              |
| Turbidity (NTU)                  | 26.8                                                                              |
| Dissolved Oxygen (mg/L)          | 0.38                                                                              |
| Temperature (Degrees Celsius)    | 15.7                                                                              |
| Redox (ORP mV)                   | -66.9                                                                             |
| parameters                       | @13:45, DTW:66.73, pH:7.14, temp:15.7, cond:1.27, turb:26.8, DO:0.38, redox:-66.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:50, DTW:66.73, pH:7.14, temp:16.6, cond:1.26, turb:21.7, DO:0.36, redox:-66.6

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:50                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 150                                                                               |
| Depth to Water (ft)              | 66.73                                                                             |
| pH                               | 7.14                                                                              |
| Conductivity (mS/cm)             | 1.26                                                                              |
| Turbidity (NTU)                  | 21.7                                                                              |
| Dissolved Oxygen (mg/L)          | 0.36                                                                              |
| Temperature (Degrees Celsius)    | 16.6                                                                              |
| Redox (ORP mV)                   | -66.6                                                                             |
| parameters                       | @13:50, DTW:66.73, pH:7.14, temp:16.6, cond:1.26, turb:21.7, DO:0.36, redox:-66.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 13:51   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 2.5     |

### Sample Information

|               |        |
|---------------|--------|
| Sample Time   | 13:52  |
| Color         | Cloudy |
| Notable odors | None   |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | MW-91-5 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

Gary Ashton

Signed 2019-06-06 17:56:33 UTC

---

## 2019-06-06, MW-91-6, MW-91-6

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 12:16:53 EDT by Donald Richmond |
| Updated                                                                                           | 2019-06-06 13:20:43 EDT by Christine Gregg |
| Location                                                                                          | 42.74133375, -84.58798734                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | MW-91-6                                    |
| Well ID                                                                                           | MW-91-6                                    |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | 67 degrees overcast                        |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 58.51         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder       |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                | 12:15         |

### @12:15, DTW:65.8, pH:7.52, temp:16.7, cond:1.35, turb:13.6, DO:1.3, redox:147.4

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 12:15                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 65.8                                                                            |
| pH                            | 7.52                                                                            |
| Conductivity (mS/cm)          | 1.35                                                                            |
| Turbidity (NTU)               | 13.6                                                                            |
| Dissolved Oxygen (mg/L)       | 1.3                                                                             |
| Temperature (Degrees Celsius) | 16.7                                                                            |
| Redox (ORP mV)                | 147.4                                                                           |
| parameters                    | @12:15, DTW:65.8, pH:7.52, temp:16.7, cond:1.35, turb:13.6, DO:1.3, redox:147.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:20, DTW:65.8, pH:7.52, temp:16.9, cond:1.35, turb:7.6, DO:1.1, redox:145.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |
| pH                               | 7.52  |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.35                                                                           |
| Turbidity (NTU)               | 7.6                                                                            |
| Dissolved Oxygen (mg/L)       | 1.1                                                                            |
| Temperature (Degrees Celsius) | 16.9                                                                           |
| Redox (ORP mV)                | 145.5                                                                          |
| parameters                    | @12:20, DTW:65.8, pH:7.52, temp:16.9, cond:1.35, turb:7.6, DO:1.1, redox:145.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@12:25, DTW:65.8, pH:7.52, temp:16.9, cond:1.35, turb:7.22, DO:1.04, redox:141.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.8                                                                             |
| pH                               | 7.52                                                                             |
| Conductivity (mS/cm)             | 1.35                                                                             |
| Turbidity (NTU)                  | 7.22                                                                             |
| Dissolved Oxygen (mg/L)          | 1.04                                                                             |
| Temperature (Degrees Celsius)    | 16.9                                                                             |
| Redox (ORP mV)                   | 141.4                                                                            |
| parameters                       | @12:25, DTW:65.8, pH:7.52, temp:16.9, cond:1.35, turb:7.22, DO:1.04, redox:141.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@12:30, DTW:65.8, pH:7.52, temp:17.3, cond:1.34, turb:7.36, DO:0.98, redox:139.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 65.8                                                                             |
| pH                               | 7.52                                                                             |
| Conductivity (mS/cm)             | 1.34                                                                             |
| Turbidity (NTU)                  | 7.36                                                                             |
| Dissolved Oxygen (mg/L)          | 0.98                                                                             |
| Temperature (Degrees Celsius)    | 17.3                                                                             |
| Redox (ORP mV)                   | 139.5                                                                            |
| parameters                       | @12:30, DTW:65.8, pH:7.52, temp:17.3, cond:1.34, turb:7.36, DO:0.98, redox:139.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@12:35, DTW:65.8, pH:7.52, temp:17.1, cond:1.35, turb:8.04, DO:0.95, redox:136.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 65.8  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| pH                                                                                                                                                                                                                                                                                                                                               | 7.52                                                                             |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 1.35                                                                             |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 8.04                                                                             |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.95                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 17.1                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 136.2                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @12:35, DTW:65.8, pH:7.52, temp:17.1, cond:1.35, turb:8.04, DO:0.95, redox:136.2 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 12:35                                                                            |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Gallons                                                                          |
| Total Gallons Purged                                                                                                                                                                                                                                                                                                                             | 0.5                                                                              |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:35 |
| Color         | None  |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | No      |
| Well Locked at Departure | No      |

Signature

A handwritten signature in black ink, appearing to read "Di Ru".

Signed 2019-06-06 16:56:01 UTC

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## 2019-06-05, MWBP-10-UST5-6, MWBP-10-UST5-6

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 10:43:16 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-05 11:53:03 EDT by Christine Gregg |
| Location                                                                                          | 42.73402087, -84.5823226                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-05                                 |
| Well Identification                                                                               | MWBP-10-UST5-6                             |
| Well ID                                                                                           | MWBP-10-UST5-6                             |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | DUP-11                                     |
| Weather                                                                                           | Cloudy Humid 60's                          |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 29.47         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 36.8          |
| Water Column                                                                                                                                                                                                                                               | 7.33          |
| Gallons in Well                                                                                                                                                                                                                                            | 1.19          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder       |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                   | 34            |
| Purge Start                                                                                                                                                                                                                                                | 10:35         |

### @10:35, DTW:29.47, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 10:35                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 29.47                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @10:35, DTW:29.47, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:40, DTW:29.5, pH:7.04, temp:14.1, cond:3.11, turb:47.7, DO:0.45, redox:-85.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 29.5  |
| Milliliters Purged (total)       | 500   |

|                               |       |
|-------------------------------|-------|
| pH                            | 7.04  |
| Conductivity (mS/cm)          | 3.11  |
| Turbidity (NTU)               | 47.7  |
| Dissolved Oxygen (mg/L)       | 0.45  |
| Temperature (Degrees Celsius) | 14.1  |
| Redox (ORP mV)                | -85.3 |

parameters @10:40, DTW:29.5, pH:7.04, temp:14.1, cond:3.11, turb:47.7, DO:0.45, redox:-85.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:45, DTW:29.5, pH:7.04, temp:14.5, cond:3.09, turb:40.5, DO:0.42, redox:-83**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 29.5  |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7.04  |
| Conductivity (mS/cm)             | 3.09  |
| Turbidity (NTU)                  | 40.5  |
| Dissolved Oxygen (mg/L)          | 0.42  |
| Temperature (Degrees Celsius)    | 14.5  |
| Redox (ORP mV)                   | -83   |

parameters @10:45, DTW:29.5, pH:7.04, temp:14.5, cond:3.09, turb:40.5, DO:0.42, redox:-83

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:50, DTW:29.5, pH:7.04, temp:14.8, cond:3.05, turb:37.1, DO:0.41, redox:-81.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 29.5  |
| Milliliters Purged (total)       | 1500  |
| pH                               | 7.04  |
| Conductivity (mS/cm)             | 3.05  |
| Turbidity (NTU)                  | 37.1  |
| Dissolved Oxygen (mg/L)          | 0.41  |
| Temperature (Degrees Celsius)    | 14.8  |
| Redox (ORP mV)                   | -81.2 |

parameters @10:50, DTW:29.5, pH:7.04, temp:14.8, cond:3.05, turb:37.1, DO:0.41, redox:-81.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:55, DTW:29.5, pH:7.05, temp:15.2, cond:3.11, turb:35.8, DO:0.42, redox:-78.8**

|              |       |
|--------------|-------|
| Reading Time | 10:55 |
|--------------|-------|



|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 29.5                                                                             |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 7.05                                                                             |
| Conductivity (mS/cm)             | 3.11                                                                             |
| Turbidity (NTU)                  | 35.8                                                                             |
| Dissolved Oxygen (mg/L)          | 0.42                                                                             |
| Temperature (Degrees Celsius)    | 15.2                                                                             |
| Redox (ORP mV)                   | -78.8                                                                            |
| parameters                       | @10:55, DTW:29.5, pH:7.05, temp:15.2, cond:3.11, turb:35.8, DO:0.42, redox:-78.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:00, DTW:29.5, pH:7.05, temp:15.2, cond:3.11, turb:32.7, DO:0.44, redox:-78.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 29.5                                                                             |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 7.05                                                                             |
| Conductivity (mS/cm)             | 3.11                                                                             |
| Turbidity (NTU)                  | 32.7                                                                             |
| Dissolved Oxygen (mg/L)          | 0.44                                                                             |
| Temperature (Degrees Celsius)    | 15.2                                                                             |
| Redox (ORP mV)                   | -78.2                                                                            |
| parameters                       | @11:00, DTW:29.5, pH:7.05, temp:15.2, cond:3.11, turb:32.7, DO:0.44, redox:-78.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:05, DTW:29.5, pH:7.05, temp:15.2, cond:3.12, turb:28.6, DO:0.42, redox:-77.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:05                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 29.5                                                                             |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.05                                                                             |
| Conductivity (mS/cm)             | 3.12                                                                             |
| Turbidity (NTU)                  | 28.6                                                                             |
| Dissolved Oxygen (mg/L)          | 0.42                                                                             |
| Temperature (Degrees Celsius)    | 15.2                                                                             |
| Redox (ORP mV)                   | -77.7                                                                            |
| parameters                       | @11:05, DTW:29.5, pH:7.05, temp:15.2, cond:3.12, turb:28.6, DO:0.42, redox:-77.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:10, DTW:29.5, pH:7.05, temp:15.2, cond:3.13, turb:22.9, DO:0.42, redox:-77.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 29.5                                                                             |
| Milliliters Purged (total)       | 3500                                                                             |
| pH                               | 7.05                                                                             |
| Conductivity (mS/cm)             | 3.13                                                                             |
| Turbidity (NTU)                  | 22.9                                                                             |
| Dissolved Oxygen (mg/L)          | 0.42                                                                             |
| Temperature (Degrees Celsius)    | 15.2                                                                             |
| Redox (ORP mV)                   | -77.6                                                                            |
| parameters                       | @11:10, DTW:29.5, pH:7.05, temp:15.2, cond:3.13, turb:22.9, DO:0.42, redox:-77.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:15, DTW:29.5, pH:7.05, temp:15.2, cond:3.13, turb:22.4, DO:0.42, redox:-77.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 29.5                                                                             |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 7.05                                                                             |
| Conductivity (mS/cm)             | 3.13                                                                             |
| Turbidity (NTU)                  | 22.4                                                                             |
| Dissolved Oxygen (mg/L)          | 0.42                                                                             |
| Temperature (Degrees Celsius)    | 15.2                                                                             |
| Redox (ORP mV)                   | -77.1                                                                            |
| parameters                       | @11:15, DTW:29.5, pH:7.05, temp:15.2, cond:3.13, turb:22.4, DO:0.42, redox:-77.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:20, DTW:29.5, pH:7.05, temp:15.2, cond:3.13, turb:14.6, DO:0.41, redox:-76.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 29.5  |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.05  |
| Conductivity (mS/cm)             | 3.13  |
| Turbidity (NTU)                  | 14.6  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.41                                                                             |
| Temperature (Degrees Celsius) | 15.2                                                                             |
| Redox (ORP mV)                | -76.9                                                                            |
| parameters                    | @11:20, DTW:29.5, pH:7.05, temp:15.2, cond:3.13, turb:14.6, DO:0.41, redox:-76.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:25, DTW:29.5, pH:7.04, temp:15.1, cond:3.13, turb:11, DO:0.39, redox:-77.2**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 29.5                                                                           |
| Milliliters Purged (total)       | 5000                                                                           |
| pH                               | 7.04                                                                           |
| Conductivity (mS/cm)             | 3.13                                                                           |
| Turbidity (NTU)                  | 11                                                                             |
| Dissolved Oxygen (mg/L)          | 0.39                                                                           |
| Temperature (Degrees Celsius)    | 15.1                                                                           |
| Redox (ORP mV)                   | -77.2                                                                          |
| parameters                       | @11:25, DTW:29.5, pH:7.04, temp:15.1, cond:3.13, turb:11, DO:0.39, redox:-77.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:30, DTW:29.5, pH:7.04, temp:15.1, cond:3.13, turb:10.1, DO:0.43, redox:-77.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 29.5                                                                             |
| Milliliters Purged (total)       | 5500                                                                             |
| pH                               | 7.04                                                                             |
| Conductivity (mS/cm)             | 3.13                                                                             |
| Turbidity (NTU)                  | 10.1                                                                             |
| Dissolved Oxygen (mg/L)          | 0.43                                                                             |
| Temperature (Degrees Celsius)    | 15.1                                                                             |
| Redox (ORP mV)                   | -77.3                                                                            |
| parameters                       | @11:30, DTW:29.5, pH:7.04, temp:15.1, cond:3.13, turb:10.1, DO:0.43, redox:-77.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:35, DTW:29.5, pH:7.05, temp:15.1, cond:3.13, turb:9.95, DO:0.4, redox:-77.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:35 |
| Minutes Elapsed between readings | 1418  |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 29.5  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Milliliters Purged (total)                                                                                                                                                                                                                                                                                                                       | 6000                                                                            |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.05                                                                            |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 3.13                                                                            |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 9.95                                                                            |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.4                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 15.1                                                                            |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -77.6                                                                           |
| parameters                                                                                                                                                                                                                                                                                                                                       | @11:35, DTW:29.5, pH:7.05, temp:15.1, cond:3.13, turb:9.95, DO:0.4, redox:-77.6 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                 |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 11:35                                                                           |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                     |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6000                                                                            |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 1.33                                                                            |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:35 |
| Color         | Clear |
| Notable odors | No    |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 6          |
| Preservative         | HCL        |

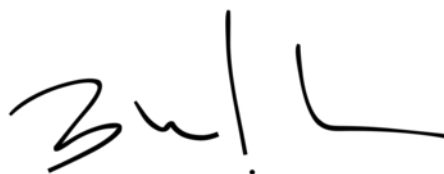
## Metals, Total

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | Metals, Total  |
| Container Type       | 125 mL Plastic |
| Number of Containers | 2              |
| Preservative         | HNO3           |

## Well Information

|                          |                      |
|--------------------------|----------------------|
| Well Location            | SE corner of Plant 2 |
| Condition of Well        | Fair                 |
| Well Locked at Arrival   | No                   |
| Well Locked at Departure | No                   |

Signature

A handwritten signature in black ink, consisting of stylized cursive letters that appear to read 'Zu! L'.

Signed 2019-06-05 14:46:56 UTC

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## 2019-06-05, MWBP-11-UST1-4, MWBP-11-UST1-4

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 12:31:47 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-05 12:45:27 EDT by Christine Gregg |
| Location                                                                                          | 42.73418264, -84.58172087                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-05                                 |
| Well Identification                                                                               | MWBP-11-UST1-4                             |
| Well ID                                                                                           | MWBP-11-UST1-4                             |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy Rainy 60's                          |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 4             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 2.17          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 11.24         |
| Water Column                                                                                                                                                                                                                                              | 9.07          |
| Gallons in Well                                                                                                                                                                                                                                           | 5.9           |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 9             |
| Purge Start                                                                                                                                                                                                                                               | 12:05         |

### @12:05, DTW:2.17, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 12:05                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 2.17                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @12:05, DTW:2.17, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:10, DTW:2.42, pH:10.31, temp:14.8, cond:0.94, turb:20.5, DO:0.38, redox:-53.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 2.42  |
| Milliliters Purged (total)       | 500   |
| pH                               | 10.31 |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.94                                                                              |
| Turbidity (NTU)               | 20.5                                                                              |
| Dissolved Oxygen (mg/L)       | 0.38                                                                              |
| Temperature (Degrees Celsius) | 14.8                                                                              |
| Redox (ORP mV)                | -53.1                                                                             |
| parameters                    | @12:10, DTW:2.42, pH:10.31, temp:14.8, cond:0.94, turb:20.5, DO:0.38, redox:-53.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:15, DTW:2.49, pH:10.31, temp:14.6, cond:0.94, turb:15.3, DO:0.38, redox:-54.7**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 2.49                                                                              |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 10.31                                                                             |
| Conductivity (mS/cm)             | 0.94                                                                              |
| Turbidity (NTU)                  | 15.3                                                                              |
| Dissolved Oxygen (mg/L)          | 0.38                                                                              |
| Temperature (Degrees Celsius)    | 14.6                                                                              |
| Redox (ORP mV)                   | -54.7                                                                             |
| parameters                       | @12:15, DTW:2.49, pH:10.31, temp:14.6, cond:0.94, turb:15.3, DO:0.38, redox:-54.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:20, DTW:2.55, pH:10.31, temp:14.6, cond:0.94, turb:12.2, DO:0.38, redox:-55.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 2.55                                                                              |
| Milliliters Purged (total)       | 1500                                                                              |
| pH                               | 10.31                                                                             |
| Conductivity (mS/cm)             | 0.94                                                                              |
| Turbidity (NTU)                  | 12.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.38                                                                              |
| Temperature (Degrees Celsius)    | 14.6                                                                              |
| Redox (ORP mV)                   | -55.1                                                                             |
| parameters                       | @12:20, DTW:2.55, pH:10.31, temp:14.6, cond:0.94, turb:12.2, DO:0.38, redox:-55.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:25, DTW:2.61, pH:10.31, temp:14.5, cond:0.94, turb:9.31, DO:0.37, redox:-55.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:25 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                               |
| Depth to Water (ft)           | 2.61                                                                              |
| Milliliters Purged (total)    | 2000                                                                              |
| pH                            | 10.31                                                                             |
| Conductivity (mS/cm)          | 0.94                                                                              |
| Turbidity (NTU)               | 9.31                                                                              |
| Dissolved Oxygen (mg/L)       | 0.37                                                                              |
| Temperature (Degrees Celsius) | 14.5                                                                              |
| Redox (ORP mV)                | -55.1                                                                             |
| parameters                    | @12:25, DTW:2.61, pH:10.31, temp:14.5, cond:0.94, turb:9.31, DO:0.37, redox:-55.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:30, DTW:2.65, pH:10.31, temp:14.6, cond:0.94, turb:6.17, DO:0.37, redox:-55.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 2.65                                                                              |
| Milliliters Purged (total)       | 2500                                                                              |
| pH                               | 10.31                                                                             |
| Conductivity (mS/cm)             | 0.94                                                                              |
| Turbidity (NTU)                  | 6.17                                                                              |
| Dissolved Oxygen (mg/L)          | 0.37                                                                              |
| Temperature (Degrees Celsius)    | 14.6                                                                              |
| Redox (ORP mV)                   | -55.2                                                                             |
| parameters                       | @12:30, DTW:2.65, pH:10.31, temp:14.6, cond:0.94, turb:6.17, DO:0.37, redox:-55.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:35, DTW:2.69, pH:10.31, temp:14.6, cond:0.94, turb:3.92, DO:0.37, redox:-55.5**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 2.69                                                                              |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 10.31                                                                             |
| Conductivity (mS/cm)             | 0.94                                                                              |
| Turbidity (NTU)                  | 3.92                                                                              |
| Dissolved Oxygen (mg/L)          | 0.37                                                                              |
| Temperature (Degrees Celsius)    | 14.6                                                                              |
| Redox (ORP mV)                   | -55.5                                                                             |
| parameters                       | @12:35, DTW:2.69, pH:10.31, temp:14.6, cond:0.94, turb:3.92, DO:0.37, redox:-55.5 |



Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:40, DTW:2.73, pH:10.31, temp:14.6, cond:0.94, turb:2.78, DO:0.37, redox:-55.7**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:40                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 2.73                                                                              |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 10.31                                                                             |
| Conductivity (mS/cm)             | 0.94                                                                              |
| Turbidity (NTU)                  | 2.78                                                                              |
| Dissolved Oxygen (mg/L)          | 0.37                                                                              |
| Temperature (Degrees Celsius)    | 14.6                                                                              |
| Redox (ORP mV)                   | -55.7                                                                             |
| parameters                       | @12:40, DTW:2.73, pH:10.31, temp:14.6, cond:0.94, turb:2.78, DO:0.37, redox:-55.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:45, DTW:2.76, pH:10.31, temp:14.6, cond:0.94, turb:2.21, DO:0.36, redox:-56.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 12:45                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 2.76                                                                              |
| Milliliters Purged (total)       | 4000                                                                              |
| pH                               | 10.31                                                                             |
| Conductivity (mS/cm)             | 0.94                                                                              |
| Turbidity (NTU)                  | 2.21                                                                              |
| Dissolved Oxygen (mg/L)          | 0.36                                                                              |
| Temperature (Degrees Celsius)    | 14.6                                                                              |
| Redox (ORP mV)                   | -56.1                                                                             |
| parameters                       | @12:45, DTW:2.76, pH:10.31, temp:14.6, cond:0.94, turb:2.21, DO:0.36, redox:-56.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:50, DTW:2.79, pH:10.31, temp:14.6, cond:94, turb:1.88, DO:0.34, redox:-56.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 2.79  |
| Milliliters Purged (total)       | 4500  |
| pH                               | 10.31 |
| Conductivity (mS/cm)             | 94    |
| Turbidity (NTU)                  | 1.88  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.34                                                                            |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 14.6                                                                            |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -56.6                                                                           |
| parameters                                                                                                                                                                                                                                                                                                                                       | @12:50, DTW:2.79, pH:10.31, temp:14.6, cond:94, turb:1.88, DO:0.34, redox:-56.6 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                 |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 12:50                                                                           |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                     |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 4500                                                                            |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.2                                                                             |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:50 |
| Color         | Clear |
| Notable odors | No    |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## Well Information

|                          |                      |
|--------------------------|----------------------|
| Well Location            | SW corner of Plant 6 |
| Condition of Well        | Good                 |
| Well Locked at Arrival   | No                   |
| Well Locked at Departure | No                   |

Photo of Well



Comments

Didn't meet drawdown requirements

Signature

341

Signed 2019-06-05 16:35:02 UTC

## 2019-06-05, MWBP-12A-UST1-4, MWBP-12A-UST1-4

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 13:09:00 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-05 14:03:52 EDT by Christine Gregg |
| Location                                                                                          | 42.73416638, -84.58157343                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-05                                 |
| Well Identification                                                                               | MWBP-12A-UST1-4                            |
| Well ID                                                                                           | MWBP-12A-UST1-4                            |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy Windy Humid 60's                    |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 28.18         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 36.68         |
| Water Column                                                                                                                                                                                                                                              | 8.5           |
| Gallons in Well                                                                                                                                                                                                                                           | 1.38          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 34            |
| Purge Start                                                                                                                                                                                                                                               | 13:10         |

### @13:10, DTW:28.18, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 13:10                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 28.18                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @13:10, DTW:28.18, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:15, DTW:28.18, pH:6.91, temp:19.3, cond:3.76, turb:59.2, DO:1.96, redox:-77.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 28.18 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.91  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 3.76                                                                              |
| Turbidity (NTU)               | 59.2                                                                              |
| Dissolved Oxygen (mg/L)       | 1.96                                                                              |
| Temperature (Degrees Celsius) | 19.3                                                                              |
| Redox (ORP mV)                | -77.9                                                                             |
| parameters                    | @13:15, DTW:28.18, pH:6.91, temp:19.3, cond:3.76, turb:59.2, DO:1.96, redox:-77.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:20, DTW:28.18, pH:6.84, temp:18, cond:3.85, turb:51.2, DO:0.42, redox:-79.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 28.18                                                                           |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 6.84                                                                            |
| Conductivity (mS/cm)             | 3.85                                                                            |
| Turbidity (NTU)                  | 51.2                                                                            |
| Dissolved Oxygen (mg/L)          | 0.42                                                                            |
| Temperature (Degrees Celsius)    | 18                                                                              |
| Redox (ORP mV)                   | -79.9                                                                           |
| parameters                       | @13:20, DTW:28.18, pH:6.84, temp:18, cond:3.85, turb:51.2, DO:0.42, redox:-79.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:25, DTW:28.18, pH:6.84, temp:17.9, cond:3.86, turb:45.3, DO:0.43, redox:-79.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:25                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 28.18                                                                             |
| Milliliters Purged (total)       | 1500                                                                              |
| pH                               | 6.84                                                                              |
| Conductivity (mS/cm)             | 3.86                                                                              |
| Turbidity (NTU)                  | 45.3                                                                              |
| Dissolved Oxygen (mg/L)          | 0.43                                                                              |
| Temperature (Degrees Celsius)    | 17.9                                                                              |
| Redox (ORP mV)                   | -79.2                                                                             |
| parameters                       | @13:25, DTW:28.18, pH:6.84, temp:17.9, cond:3.86, turb:45.3, DO:0.43, redox:-79.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:30, DTW:28.18, pH:6.84, temp:17.7, cond:3.87, turb:42.1, DO:0.41, redox:-79.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:30 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                               |
| Depth to Water (ft)           | 28.18                                                                             |
| Milliliters Purged (total)    | 2000                                                                              |
| pH                            | 6.84                                                                              |
| Conductivity (mS/cm)          | 3.87                                                                              |
| Turbidity (NTU)               | 42.1                                                                              |
| Dissolved Oxygen (mg/L)       | 0.41                                                                              |
| Temperature (Degrees Celsius) | 17.7                                                                              |
| Redox (ORP mV)                | -79.6                                                                             |
| parameters                    | @13:30, DTW:28.18, pH:6.84, temp:17.7, cond:3.87, turb:42.1, DO:0.41, redox:-79.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:35, DTW:28.18, pH:6.84, temp:17.7, cond:3.88, turb:32.2, DO:0.38, redox:-80.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 28.18                                                                             |
| Milliliters Purged (total)       | 2500                                                                              |
| pH                               | 6.84                                                                              |
| Conductivity (mS/cm)             | 3.88                                                                              |
| Turbidity (NTU)                  | 32.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.38                                                                              |
| Temperature (Degrees Celsius)    | 17.7                                                                              |
| Redox (ORP mV)                   | -80.1                                                                             |
| parameters                       | @13:35, DTW:28.18, pH:6.84, temp:17.7, cond:3.88, turb:32.2, DO:0.38, redox:-80.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:28.18, pH:6.84, temp:17.7, cond:3.88, turb:19.9, DO:0.36, redox:-79.9**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 28.18                                                                             |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 6.84                                                                              |
| Conductivity (mS/cm)             | 3.88                                                                              |
| Turbidity (NTU)                  | 19.9                                                                              |
| Dissolved Oxygen (mg/L)          | 0.36                                                                              |
| Temperature (Degrees Celsius)    | 17.7                                                                              |
| Redox (ORP mV)                   | -79.9                                                                             |
| parameters                       | @13:40, DTW:28.18, pH:6.84, temp:17.7, cond:3.88, turb:19.9, DO:0.36, redox:-79.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:45, DTW:28.18, pH:6.84, temp:17.6, cond:3.89, turb:17.4, DO:0.36, redox:-80.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:45                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 28.18                                                                             |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 6.84                                                                              |
| Conductivity (mS/cm)             | 3.89                                                                              |
| Turbidity (NTU)                  | 17.4                                                                              |
| Dissolved Oxygen (mg/L)          | 0.36                                                                              |
| Temperature (Degrees Celsius)    | 17.6                                                                              |
| Redox (ORP mV)                   | -80.2                                                                             |
| parameters                       | @13:45, DTW:28.18, pH:6.84, temp:17.6, cond:3.89, turb:17.4, DO:0.36, redox:-80.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:50, DTW:28.18, pH:6.84, temp:17.6, cond:3.89, turb:17.8, DO:0.33, redox:-80.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 13:50                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 28.18                                                                             |
| Milliliters Purged (total)       | 4000                                                                              |
| pH                               | 6.84                                                                              |
| Conductivity (mS/cm)             | 3.89                                                                              |
| Turbidity (NTU)                  | 17.8                                                                              |
| Dissolved Oxygen (mg/L)          | 0.33                                                                              |
| Temperature (Degrees Celsius)    | 17.6                                                                              |
| Redox (ORP mV)                   | -80.4                                                                             |
| parameters                       | @13:50, DTW:28.18, pH:6.84, temp:17.6, cond:3.89, turb:17.8, DO:0.33, redox:-80.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 13:50       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 4000        |
| Well Volumes Purged           | 0.77        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:50 |
| Color         | Clear |
| Notable odors | No    |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## Well Information

|                          |                      |
|--------------------------|----------------------|
| Well Location            | SW corner of Plant 6 |
| Condition of Well        | Poor                 |
| Well Locked at Arrival   | Yes                  |
| Well Locked at Departure | Yes                  |

Photo of Well





Signature

A handwritten signature in black ink, appearing to be 'bu/h' with a long horizontal flourish extending to the right.

Signed 2019-06-05 17:18:33 UTC

---

## 2019-06-05, MWBP-12-UST1-4, MWBP-12-UST1-4

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-05 14:05:22 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-05 14:21:59 EDT by Christine Gregg |
| Location                                                                                          | 42.73420096, -84.5816238                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-05                                 |
| Well Identification                                                                               | MWBP-12-UST1-4                             |
| Well ID                                                                                           | MWBP-12-UST1-4                             |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | MSMSD                                      |
| Weather                                                                                           | Mostly Cloudy Humid 70's                   |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 4             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 7.18          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 11.26         |
| Water Column                                                                                                                                                                                                                                           | 4.08          |
| Gallons in Well                                                                                                                                                                                                                                        | 2.65          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 10            |
| Purge Start                                                                                                                                                                                                                                            | 14:05         |

### @14:05, DTW:7.18, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 14:05                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 7.18                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @14:05, DTW:7.18, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:10, DTW:7.35, pH:7.37, temp:15, cond:2.3, turb:26.1, DO:0.59, redox:-144.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 7.35  |
| Milliliters Purged (total)       | 500   |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| pH                            | 7.37                                                                           |
| Conductivity (mS/cm)          | 2.3                                                                            |
| Turbidity (NTU)               | 26.1                                                                           |
| Dissolved Oxygen (mg/L)       | 0.59                                                                           |
| Temperature (Degrees Celsius) | 15                                                                             |
| Redox (ORP mV)                | -144.9                                                                         |
| parameters                    | @14:10, DTW:7.35, pH:7.37, temp:15, cond:2.3, turb:26.1, DO:0.59, redox:-144.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:15, DTW:7.35, pH:7.37, temp:14.9, cond:2.3, turb:15.9, DO:0.39, redox:-143**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 14:15                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 7.35                                                                           |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 7.37                                                                           |
| Conductivity (mS/cm)             | 2.3                                                                            |
| Turbidity (NTU)                  | 15.9                                                                           |
| Dissolved Oxygen (mg/L)          | 0.39                                                                           |
| Temperature (Degrees Celsius)    | 14.9                                                                           |
| Redox (ORP mV)                   | -143                                                                           |
| parameters                       | @14:15, DTW:7.35, pH:7.37, temp:14.9, cond:2.3, turb:15.9, DO:0.39, redox:-143 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:20, DTW:7.35, pH:7.36, temp:14.4, cond:2.31, turb:11.9, DO:0.29, redox:-141.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 7.35                                                                              |
| Milliliters Purged (total)       | 1500                                                                              |
| pH                               | 7.36                                                                              |
| Conductivity (mS/cm)             | 2.31                                                                              |
| Turbidity (NTU)                  | 11.9                                                                              |
| Dissolved Oxygen (mg/L)          | 0.29                                                                              |
| Temperature (Degrees Celsius)    | 14.4                                                                              |
| Redox (ORP mV)                   | -141.2                                                                            |
| parameters                       | @14:20, DTW:7.35, pH:7.36, temp:14.4, cond:2.31, turb:11.9, DO:0.29, redox:-141.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:25, DTW:7.35, pH:7.36, temp:14.4, cond:2.31, turb:9.64, DO:0.26, redox:-142.4**

|              |       |
|--------------|-------|
| Reading Time | 14:25 |
|--------------|-------|

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 7.35                                                                              |
| Milliliters Purged (total)       | 2000                                                                              |
| pH                               | 7.36                                                                              |
| Conductivity (mS/cm)             | 2.31                                                                              |
| Turbidity (NTU)                  | 9.64                                                                              |
| Dissolved Oxygen (mg/L)          | 0.26                                                                              |
| Temperature (Degrees Celsius)    | 14.4                                                                              |
| Redox (ORP mV)                   | -142.4                                                                            |
| parameters                       | @14:25, DTW:7.35, pH:7.36, temp:14.4, cond:2.31, turb:9.64, DO:0.26, redox:-142.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:30, DTW:7.35, pH:7.36, temp:14.4, cond:2.31, turb:9.03, DO:0.24, redox:-143.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:30                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 7.35                                                                              |
| Milliliters Purged (total)       | 2500                                                                              |
| pH                               | 7.36                                                                              |
| Conductivity (mS/cm)             | 2.31                                                                              |
| Turbidity (NTU)                  | 9.03                                                                              |
| Dissolved Oxygen (mg/L)          | 0.24                                                                              |
| Temperature (Degrees Celsius)    | 14.4                                                                              |
| Redox (ORP mV)                   | -143.2                                                                            |
| parameters                       | @14:30, DTW:7.35, pH:7.36, temp:14.4, cond:2.31, turb:9.03, DO:0.24, redox:-143.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:35, DTW:7.35, pH:7.36, temp:14.4, cond:2.31, turb:8.86, DO:0.23, redox:-143.1**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 7.35                                                                              |
| Milliliters Purged (total)       | 3000                                                                              |
| pH                               | 7.36                                                                              |
| Conductivity (mS/cm)             | 2.31                                                                              |
| Turbidity (NTU)                  | 8.86                                                                              |
| Dissolved Oxygen (mg/L)          | 0.23                                                                              |
| Temperature (Degrees Celsius)    | 14.4                                                                              |
| Redox (ORP mV)                   | -143.1                                                                            |
| parameters                       | @14:35, DTW:7.35, pH:7.36, temp:14.4, cond:2.31, turb:8.86, DO:0.23, redox:-143.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 14:35       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 3000        |
| Well Volumes Purged           | 0.3         |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:35 |
| Color         | Clear |
| Notable odors | No    |

### VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 9          |
| Preservative         | HCL        |

### Well Information

|                          |                      |
|--------------------------|----------------------|
| Well Location            | SW corner of Plant 6 |
| Condition of Well        | Good                 |
| Well Locked at Arrival   | No                   |
| Well Locked at Departure | No                   |
| Photo of Well            |                      |



Signature

A handwritten signature in black ink, consisting of the letters 'ZuL' in a cursive style. The 'Z' and 'u' are connected, and the 'L' has a long horizontal stroke extending to the right.

Signed 2019-06-05 18:12:55 UTC

---

## 2019-06-04, P2-SB-20, P2-SB-20

|                                                                                                   |                                             |
|---------------------------------------------------------------------------------------------------|---------------------------------------------|
| Created                                                                                           | 2019-06-04 14:28:34 EDT by Jessica Fransted |
| Updated                                                                                           | 2019-06-04 15:49:06 EDT by Christine Gregg  |
| Location                                                                                          | 42.7388553, -84.5848644                     |
| Project Number                                                                                    | B0064479.2019                               |
| Project Name / Location                                                                           | RACER Lansing, MI                           |
| Sampler Name                                                                                      | Jessica Fransted                            |
| Date                                                                                              | 2019-06-04                                  |
| Well Identification                                                                               | P2-SB-20                                    |
| Well ID                                                                                           | P2-SB-20                                    |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                         |
| Weather                                                                                           | Cloudy 70s                                  |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 8.54          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 16.2          |
| Water Column                                                                                                                                                                                                                                              | 7.66          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.24          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                               | 14:50         |

### @14:50, DTW:., pH:7.74, temp:15.1, cond:0.238, turb:0.02, DO:19.48, redox:110.3

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 14:50                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| pH                            | 7.74                                                                            |
| Conductivity (mS/cm)          | 0.238                                                                           |
| Turbidity (NTU)               | 0.02                                                                            |
| Dissolved Oxygen (mg/L)       | 19.48                                                                           |
| Temperature (Degrees Celsius) | 15.1                                                                            |
| Redox (ORP mV)                | 110.3                                                                           |
| parameters                    | @14:50, DTW:., pH:7.74, temp:15.1, cond:0.238, turb:0.02, DO:19.48, redox:110.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:55, DTW:., pH:7.82, temp:16.2, cond:0.274, turb:0.02, DO:17.68, redox:99.8

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| pH                            | 7.82                                                                          |
| Conductivity (mS/cm)          | 0.274                                                                         |
| Turbidity (NTU)               | 0.02                                                                          |
| Dissolved Oxygen (mg/L)       | 17.68                                                                         |
| Temperature (Degrees Celsius) | 16.2                                                                          |
| Redox (ORP mV)                | 99.8                                                                          |
| parameters                    | @14:55, DTW:, pH:7.82, temp:16.2, cond:0.274, turb:0.02, DO:17.68, redox:99.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:00, DTW:, pH:7.73, temp:16.2, cond:0.263, turb:0.02, DO:17.4, redox:89.6**

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Reading Time                     | 15:00                                                                        |
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 200                                                                          |
| pH                               | 7.73                                                                         |
| Conductivity (mS/cm)             | 0.263                                                                        |
| Turbidity (NTU)                  | 0.02                                                                         |
| Dissolved Oxygen (mg/L)          | 17.4                                                                         |
| Temperature (Degrees Celsius)    | 16.2                                                                         |
| Redox (ORP mV)                   | 89.6                                                                         |
| parameters                       | @15:00, DTW:, pH:7.73, temp:16.2, cond:0.263, turb:0.02, DO:17.4, redox:89.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:05, DTW:, pH:7.58, temp:16, cond:0.256, turb:0.02, DO:17.4, redox:76.2**

|                                  |                                                                            |
|----------------------------------|----------------------------------------------------------------------------|
| Reading Time                     | 15:05                                                                      |
| Minutes Elapsed between readings | 5                                                                          |
| Rate (mL/min)                    | 200                                                                        |
| pH                               | 7.58                                                                       |
| Conductivity (mS/cm)             | 0.256                                                                      |
| Turbidity (NTU)                  | 0.02                                                                       |
| Dissolved Oxygen (mg/L)          | 17.4                                                                       |
| Temperature (Degrees Celsius)    | 16                                                                         |
| Redox (ORP mV)                   | 76.2                                                                       |
| parameters                       | @15:05, DTW:, pH:7.58, temp:16, cond:0.256, turb:0.02, DO:17.4, redox:76.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:10, DTW:, pH:7.54, temp:16, cond:0.249, turb:0.02, DO:17.56, redox:44.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| pH                               | 7.54  |
| Conductivity (mS/cm)             | 0.249 |



|                               |                                                                             |
|-------------------------------|-----------------------------------------------------------------------------|
| Turbidity (NTU)               | 0.02                                                                        |
| Dissolved Oxygen (mg/L)       | 17.56                                                                       |
| Temperature (Degrees Celsius) | 16                                                                          |
| Redox (ORP mV)                | 44.4                                                                        |
| parameters                    | @15:10, DTW:, pH:7.54, temp:16, cond:0.249, turb:0.02, DO:17.56, redox:44.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:15, DTW:, pH:7.5, temp:15.3, cond:0.563, turb:0.02, DO:18.45, redox:8**

|                                  |                                                                           |
|----------------------------------|---------------------------------------------------------------------------|
| Reading Time                     | 15:15                                                                     |
| Minutes Elapsed between readings | 5                                                                         |
| Rate (mL/min)                    | 200                                                                       |
| pH                               | 7.5                                                                       |
| Conductivity (mS/cm)             | 0.563                                                                     |
| Turbidity (NTU)                  | 0.02                                                                      |
| Dissolved Oxygen (mg/L)          | 18.45                                                                     |
| Temperature (Degrees Celsius)    | 15.3                                                                      |
| Redox (ORP mV)                   | 8                                                                         |
| parameters                       | @15:15, DTW:, pH:7.5, temp:15.3, cond:0.563, turb:0.02, DO:18.45, redox:8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:20, DTW:, pH:7.49, temp:15.4, cond:0.265, turb:0.02, DO:18.17, redox:-21.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:20                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| pH                               | 7.49                                                                           |
| Conductivity (mS/cm)             | 0.265                                                                          |
| Turbidity (NTU)                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)          | 18.17                                                                          |
| Temperature (Degrees Celsius)    | 15.4                                                                           |
| Redox (ORP mV)                   | -21.1                                                                          |
| parameters                       | @15:20, DTW:, pH:7.49, temp:15.4, cond:0.265, turb:0.02, DO:18.17, redox:-21.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:25, DTW:, pH:7.49, temp:15.1, cond:0.262, turb:0.02, DO:18.42, redox:-46.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| pH                               | 7.49  |
| Conductivity (mS/cm)             | 0.262 |
| Turbidity (NTU)                  | 0.02  |
| Dissolved Oxygen (mg/L)          | 18.42 |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Temperature (Degrees Celsius) | 15.1                                                                           |
| Redox (ORP mV)                | -46.5                                                                          |
| parameters                    | @15:25, DTW:, pH:7.49, temp:15.1, cond:0.262, turb:0.02, DO:18.42, redox:-46.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:30, DTW:, pH:7.48, temp:15.1, cond:0.263, turb:0.02, DO:18.2, redox:-76.1

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 15:30                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| pH                               | 7.48                                                                          |
| Conductivity (mS/cm)             | 0.263                                                                         |
| Turbidity (NTU)                  | 0.02                                                                          |
| Dissolved Oxygen (mg/L)          | 18.2                                                                          |
| Temperature (Degrees Celsius)    | 15.1                                                                          |
| Redox (ORP mV)                   | -76.1                                                                         |
| parameters                       | @15:30, DTW:, pH:7.48, temp:15.1, cond:0.263, turb:0.02, DO:18.2, redox:-76.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:35, DTW:, pH:7.48, temp:15.1, cond:0.265, turb:0.02, DO:18.16, redox:-97.1

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:35                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| pH                               | 7.48                                                                           |
| Conductivity (mS/cm)             | 0.265                                                                          |
| Turbidity (NTU)                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)          | 18.16                                                                          |
| Temperature (Degrees Celsius)    | 15.1                                                                           |
| Redox (ORP mV)                   | -97.1                                                                          |
| parameters                       | @15:35, DTW:, pH:7.48, temp:15.1, cond:0.265, turb:0.02, DO:18.16, redox:-97.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:40, DTW:, pH:7.47, temp:15.1, cond:0.266, turb:0.02, DO:18.42, redox:-101.1

|                                  |        |
|----------------------------------|--------|
| Reading Time                     | 15:40  |
| Minutes Elapsed between readings | 5      |
| Rate (mL/min)                    | 200    |
| pH                               | 7.47   |
| Conductivity (mS/cm)             | 0.266  |
| Turbidity (NTU)                  | 0.02   |
| Dissolved Oxygen (mg/L)          | 18.42  |
| Temperature (Degrees Celsius)    | 15.1   |
| Redox (ORP mV)                   | -101.1 |

parameters

@15:40, DTW:, pH:7.47, temp:15.1, cond:0.266, turb:0.02, DO:18.42, redox:-101.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:40, DTW:, pH:7.46, temp:14.7, cond:0.261, turb:0.02, DO:18.65, redox:-102.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:40                                                                           |
| Minutes Elapsed between readings | 1440                                                                            |
| Rate (mL/min)                    | 200                                                                             |
| pH                               | 7.46                                                                            |
| Conductivity (mS/cm)             | 0.261                                                                           |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 18.65                                                                           |
| Temperature (Degrees Celsius)    | 14.7                                                                            |
| Redox (ORP mV)                   | -102.2                                                                          |
| parameters                       | @15:40, DTW:, pH:7.46, temp:14.7, cond:0.261, turb:0.02, DO:18.65, redox:-102.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 15:40 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 15:40 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to read "Louise Hansted". The signature is written in a cursive style with a large, prominent loop at the top.

Signed 2019-06-04 18:30:37 UTC

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## 2019-06-06, P6-SB-07, P6-SB-07

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-06 11:58:01 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-06-06 12:45:12 EDT by Christine Gregg |
| Location                                                                                          | 42.73556331, -84.58048219                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-06-06                                 |
| Well Identification                                                                               | P6-SB-07                                   |
| Well ID                                                                                           | P6-SB-07                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy Humid 60's                          |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 5.28          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 23.56         |
| Water Column                                                                                                                                                                                                                                              | 18.28         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.97          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 21            |
| Purge Start                                                                                                                                                                                                                                               | 12:05         |

### @12:05, DTW:5.28, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 12:05                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 5.28                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @12:05, DTW:5.28, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:10, DTW:5.36, pH:7.43, temp:14.5, cond:0.73, turb:18.6, DO:0.73, redox:-42.2

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 5.36  |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.43  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 0.73                                                                             |
| Turbidity (NTU)               | 18.6                                                                             |
| Dissolved Oxygen (mg/L)       | 0.73                                                                             |
| Temperature (Degrees Celsius) | 14.5                                                                             |
| Redox (ORP mV)                | -42.2                                                                            |
| parameters                    | @12:10, DTW:5.36, pH:7.43, temp:14.5, cond:0.73, turb:18.6, DO:0.73, redox:-42.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:15, DTW:5.38, pH:7.38, temp:14.3, cond:0.72, turb:12.8, DO:0.34, redox:-54.9**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:15                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 5.38                                                                             |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.38                                                                             |
| Conductivity (mS/cm)             | 0.72                                                                             |
| Turbidity (NTU)                  | 12.8                                                                             |
| Dissolved Oxygen (mg/L)          | 0.34                                                                             |
| Temperature (Degrees Celsius)    | 14.3                                                                             |
| Redox (ORP mV)                   | -54.9                                                                            |
| parameters                       | @12:15, DTW:5.38, pH:7.38, temp:14.3, cond:0.72, turb:12.8, DO:0.34, redox:-54.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:20, DTW:5.38, pH:7.38, temp:14.2, cond:0.72, turb:9.07, DO:0.31, redox:-56.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:20                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 5.38                                                                             |
| Milliliters Purged (total)       | 1500                                                                             |
| pH                               | 7.38                                                                             |
| Conductivity (mS/cm)             | 0.72                                                                             |
| Turbidity (NTU)                  | 9.07                                                                             |
| Dissolved Oxygen (mg/L)          | 0.31                                                                             |
| Temperature (Degrees Celsius)    | 14.2                                                                             |
| Redox (ORP mV)                   | -56.1                                                                            |
| parameters                       | @12:20, DTW:5.38, pH:7.38, temp:14.2, cond:0.72, turb:9.07, DO:0.31, redox:-56.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:25, DTW:5.38, pH:7.38, temp:14.2, cond:0.72, turb:9.89, DO:0.31, redox:-57.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:25 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 5.38                                                                             |
| Milliliters Purged (total)    | 2000                                                                             |
| pH                            | 7.38                                                                             |
| Conductivity (mS/cm)          | 0.72                                                                             |
| Turbidity (NTU)               | 9.89                                                                             |
| Dissolved Oxygen (mg/L)       | 0.31                                                                             |
| Temperature (Degrees Celsius) | 14.2                                                                             |
| Redox (ORP mV)                | -57.1                                                                            |
| parameters                    | @12:25, DTW:5.38, pH:7.38, temp:14.2, cond:0.72, turb:9.89, DO:0.31, redox:-57.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:30, DTW:5.38, pH:7.38, temp:14.3, cond:0.71, turb:8.03, DO:0.31, redox:-57.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 5.38                                                                             |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 7.38                                                                             |
| Conductivity (mS/cm)             | 0.71                                                                             |
| Turbidity (NTU)                  | 8.03                                                                             |
| Dissolved Oxygen (mg/L)          | 0.31                                                                             |
| Temperature (Degrees Celsius)    | 14.3                                                                             |
| Redox (ORP mV)                   | -57.7                                                                            |
| parameters                       | @12:30, DTW:5.38, pH:7.38, temp:14.3, cond:0.71, turb:8.03, DO:0.31, redox:-57.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:35, DTW:5.38, pH:7.39, temp:14.3, cond:0.71, turb:7.54, DO:0.29, redox:-58.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 5.38                                                                             |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.39                                                                             |
| Conductivity (mS/cm)             | 0.71                                                                             |
| Turbidity (NTU)                  | 7.54                                                                             |
| Dissolved Oxygen (mg/L)          | 0.29                                                                             |
| Temperature (Degrees Celsius)    | 14.3                                                                             |
| Redox (ORP mV)                   | -58.3                                                                            |
| parameters                       | @12:35, DTW:5.38, pH:7.39, temp:14.3, cond:0.71, turb:7.54, DO:0.29, redox:-58.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:40, DTW:5.38, pH:7.39, temp:14.2, cond:0.72, turb:7.88, DO:0.29, redox:-59.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 5.38                                                                             |
| Milliliters Purged (total)       | 3500                                                                             |
| pH                               | 7.39                                                                             |
| Conductivity (mS/cm)             | 0.72                                                                             |
| Turbidity (NTU)                  | 7.88                                                                             |
| Dissolved Oxygen (mg/L)          | 0.29                                                                             |
| Temperature (Degrees Celsius)    | 14.2                                                                             |
| Redox (ORP mV)                   | -59.3                                                                            |
| parameters                       | @12:40, DTW:5.38, pH:7.39, temp:14.2, cond:0.72, turb:7.88, DO:0.29, redox:-59.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 12:40       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 3500        |
| Well Volumes Purged           | 0.31        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:40 |
| Color         | Clear |
| Notable odors | No    |

## PFAS

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | PFAS           |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |                             |
|--------------------------|-----------------------------|
| Well Location            | Center West part of Plant 6 |
| Condition of Well        | Good                        |
| Well Locked at Arrival   | Yes                         |
| Well Locked at Departure | Yes                         |



Photo of Well



---

Signature

A handwritten signature in black ink, appearing to be 'Zell'.

Signed 2019-06-06 16:01:30 UTC

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## 2019-08-27, P6-SB-07

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2020-03-31 17:52:14 UTC by Gary Schafer |
| Updated                                                                                           | 2020-03-31 18:42:15 UTC by Gary Schafer |
| Location                                                                                          | 42.5031833025091, -83.4426103346827     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-08-27                              |
| Well ID                                                                                           | P6-SB-07                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Sunny clouds temp 75                    |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 9.22          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 23.55         |
| Water Column                                                                                                                                                                                                                                           | 14.33         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                            | 15:02         |

### @15:05, DTW:9.4, pH:7.11, temp:17.3, cond:0.61, turb:4.43, DO:0.14, redox:-12.2

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 15:05                                                                           |
| Rate (mL/min)                 | 100                                                                             |
| Depth to Water (ft)           | 9.4                                                                             |
| pH                            | 7.11                                                                            |
| Conductivity (mS/cm)          | 0.61                                                                            |
| Turbidity (NTU)               | 4.43                                                                            |
| Dissolved Oxygen (mg/L)       | 0.14                                                                            |
| Temperature (Degrees Celsius) | 17.3                                                                            |
| Redox (ORP mV)                | -12.2                                                                           |
| parameters                    | @15:05, DTW:9.4, pH:7.11, temp:17.3, cond:0.61, turb:4.43, DO:0.14, redox:-12.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @15:10, DTW:9.43, pH:7.12, temp:18.2, cond:0.66, turb:5.22, DO:0.13, redox:-52.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 9.43  |
| pH                               | 7.12  |
| Conductivity (mS/cm)             | 0.66  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Turbidity (NTU)               | 5.22                                                                             |
| Dissolved Oxygen (mg/L)       | 0.13                                                                             |
| Temperature (Degrees Celsius) | 18.2                                                                             |
| Redox (ORP mV)                | -52.3                                                                            |
| parameters                    | @15:10, DTW:9.43, pH:7.12, temp:18.2, cond:0.66, turb:5.22, DO:0.13, redox:-52.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:15, DTW:9.45, pH:7.16, temp:18.3, cond:0.67, turb:4.2, DO:0.12, redox:-69.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 15:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 9.45                                                                            |
| pH                               | 7.16                                                                            |
| Conductivity (mS/cm)             | 0.67                                                                            |
| Turbidity (NTU)                  | 4.2                                                                             |
| Dissolved Oxygen (mg/L)          | 0.12                                                                            |
| Temperature (Degrees Celsius)    | 18.3                                                                            |
| Redox (ORP mV)                   | -69.4                                                                           |
| parameters                       | @15:15, DTW:9.45, pH:7.16, temp:18.3, cond:0.67, turb:4.2, DO:0.12, redox:-69.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:20, DTW:9.5, pH:7.19, temp:18.1, cond:0.68, turb:3.36, DO:0.2, redox:-86.3**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 15:20                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 9.5                                                                            |
| pH                               | 7.19                                                                           |
| Conductivity (mS/cm)             | 0.68                                                                           |
| Turbidity (NTU)                  | 3.36                                                                           |
| Dissolved Oxygen (mg/L)          | 0.2                                                                            |
| Temperature (Degrees Celsius)    | 18.1                                                                           |
| Redox (ORP mV)                   | -86.3                                                                          |
| parameters                       | @15:20, DTW:9.5, pH:7.19, temp:18.1, cond:0.68, turb:3.36, DO:0.2, redox:-86.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:25, DTW:9.5, pH:7.2, temp:18.4, cond:0.68, turb:3.27, DO:0.21, redox:-91.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 9.5   |
| pH                               | 7.2   |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 0.68                                                                           |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 3.27                                                                           |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.21                                                                           |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 18.4                                                                           |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -91.9                                                                          |
| parameters                                                                                                                                                                                                                                                                                                                                       | @15:25, DTW:9.5, pH:7.2, temp:18.4, cond:0.68, turb:3.27, DO:0.21, redox:-91.9 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 15:29                                                                          |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Gallons                                                                        |
| Total Gallons Purged                                                                                                                                                                                                                                                                                                                             | 1.5                                                                            |

### Sample Information

|             |       |
|-------------|-------|
| Sample Time | 15:26 |
|-------------|-------|

### Well Information

|                   |          |
|-------------------|----------|
| Well Location     | P6-SB-07 |
| Condition of Well | Good     |

Signature



Signed 2020-03-31 18:42:14 UTC

## 2019-12-05, P6-SB-07

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-05 15:35:53 UTC by Gary Schafer |
| Updated                                                                                           | 2019-12-05 16:22:41 UTC by Gary Schafer |
| Location                                                                                          | 42.7355771419059, -84.580458384086      |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Gary Schafer                            |
| Date                                                                                              | 2019-12-05                              |
| Well ID                                                                                           | P6-SB-07                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Overcast / slight winds temp 33         |

### Evacuation Details

|                                                                                                                                                                                                                                                            |               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 5.55          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 23.6          |
| Water Column                                                                                                                                                                                                                                               | 18.05         |
| Gallons in Well                                                                                                                                                                                                                                            | 2.93          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                     | Peristaltic   |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                   | 5.78          |
| Purge Start                                                                                                                                                                                                                                                | 10:37         |

### @10:38, DTW:5.65, pH:7.7, temp:9.6, cond:805, turb:10.4, DO:1.66, redox:-34

|                               |                                                                             |
|-------------------------------|-----------------------------------------------------------------------------|
| Reading Time                  | 10:38                                                                       |
| Rate (mL/min)                 | 100                                                                         |
| Depth to Water (ft)           | 5.65                                                                        |
| pH                            | 7.7                                                                         |
| Conductivity (mS/cm)          | 805                                                                         |
| Turbidity (NTU)               | 10.4                                                                        |
| Dissolved Oxygen (mg/L)       | 1.66                                                                        |
| Temperature (Degrees Celsius) | 9.6                                                                         |
| Redox (ORP mV)                | -34                                                                         |
| parameters                    | @10:38, DTW:5.65, pH:7.7, temp:9.6, cond:805, turb:10.4, DO:1.66, redox:-34 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:43, DTW:5.68, pH:7.57, temp:9.2, cond:777, turb:5.38, DO:1.9, redox:-45.2

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:43 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                           |
| Depth to Water (ft)           | 5.68                                                                          |
| pH                            | 7.57                                                                          |
| Conductivity (mS/cm)          | 777                                                                           |
| Turbidity (NTU)               | 5.38                                                                          |
| Dissolved Oxygen (mg/L)       | 1.9                                                                           |
| Temperature (Degrees Celsius) | 9.2                                                                           |
| Redox (ORP mV)                | -45.2                                                                         |
| parameters                    | @10:43, DTW:5.68, pH:7.57, temp:9.2, cond:777, turb:5.38, DO:1.9, redox:-45.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:48, DTW:5.7, pH:7.47, temp:9.3, cond:764, turb:4.45, DO:1.84, redox:-49**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 10:48                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 100                                                                         |
| Depth to Water (ft)              | 5.7                                                                         |
| pH                               | 7.47                                                                        |
| Conductivity (mS/cm)             | 764                                                                         |
| Turbidity (NTU)                  | 4.45                                                                        |
| Dissolved Oxygen (mg/L)          | 1.84                                                                        |
| Temperature (Degrees Celsius)    | 9.3                                                                         |
| Redox (ORP mV)                   | -49                                                                         |
| parameters                       | @10:48, DTW:5.7, pH:7.47, temp:9.3, cond:764, turb:4.45, DO:1.84, redox:-49 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:53, DTW:5.75, pH:7.41, temp:9.2, cond:769, turb:4.29, DO:1.57, redox:-52.7**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 10:53                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 5.75                                                                           |
| pH                               | 7.41                                                                           |
| Conductivity (mS/cm)             | 769                                                                            |
| Turbidity (NTU)                  | 4.29                                                                           |
| Dissolved Oxygen (mg/L)          | 1.57                                                                           |
| Temperature (Degrees Celsius)    | 9.2                                                                            |
| Redox (ORP mV)                   | -52.7                                                                          |
| parameters                       | @10:53, DTW:5.75, pH:7.41, temp:9.2, cond:769, turb:4.29, DO:1.57, redox:-52.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:58, DTW:5.75, pH:7.4, temp:9.4, cond:767, turb:4.1, DO:1.57, redox:-52.7**

|              |       |
|--------------|-------|
| Reading Time | 10:58 |
|--------------|-------|

|                                  |                                                                              |
|----------------------------------|------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                            |
| Rate (mL/min)                    | 100                                                                          |
| Depth to Water (ft)              | 5.75                                                                         |
| pH                               | 7.4                                                                          |
| Conductivity (mS/cm)             | 767                                                                          |
| Turbidity (NTU)                  | 4.1                                                                          |
| Dissolved Oxygen (mg/L)          | 1.57                                                                         |
| Temperature (Degrees Celsius)    | 9.4                                                                          |
| Redox (ORP mV)                   | -52.7                                                                        |
| parameters                       | @10:58, DTW:5.75, pH:7.4, temp:9.4, cond:767, turb:4.1, DO:1.57, redox:-52.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:03, DTW:5.78, pH:7.4, temp:9.4, cond:769, turb:4, DO:1.54, redox:-52.9**

|                                  |                                                                            |
|----------------------------------|----------------------------------------------------------------------------|
| Reading Time                     | 11:03                                                                      |
| Minutes Elapsed between readings | 5                                                                          |
| Rate (mL/min)                    | 100                                                                        |
| Depth to Water (ft)              | 5.78                                                                       |
| pH                               | 7.4                                                                        |
| Conductivity (mS/cm)             | 769                                                                        |
| Turbidity (NTU)                  | 4                                                                          |
| Dissolved Oxygen (mg/L)          | 1.54                                                                       |
| Temperature (Degrees Celsius)    | 9.4                                                                        |
| Redox (ORP mV)                   | -52.9                                                                      |
| parameters                       | @11:03, DTW:5.78, pH:7.4, temp:9.4, cond:769, turb:4, DO:1.54, redox:-52.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:08, DTW:5.78, pH:7.39, temp:9.5, cond:772, turb:2.99, DO:1.5, redox:-54.3**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 11:08                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 5.78                                                                          |
| pH                               | 7.39                                                                          |
| Conductivity (mS/cm)             | 772                                                                           |
| Turbidity (NTU)                  | 2.99                                                                          |
| Dissolved Oxygen (mg/L)          | 1.5                                                                           |
| Temperature (Degrees Celsius)    | 9.5                                                                           |
| Redox (ORP mV)                   | -54.3                                                                         |
| parameters                       | @11:08, DTW:5.78, pH:7.39, temp:9.5, cond:772, turb:2.99, DO:1.5, redox:-54.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 11:09 |
|-----------|-------|

|                               |         |
|-------------------------------|---------|
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 0.5     |
| Well Volumes Purged           | 0.17    |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:09 |
| Color         | Clear |
| Notable odors | None  |

### Well Information

|                          |          |
|--------------------------|----------|
| Well Location            | P6-SB-07 |
| Condition of Well        | Good     |
| Well Locked at Arrival   | Yes      |
| Well Locked at Departure | Yes      |

Signature



Signed 2019-12-05 16:16:07 UTC



## 2019-02-28, PW-14-01, PW-14-01

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-02-28 09:23:41 EST by Billy Cobern    |
| Updated                                                                                           | 2019-02-28 10:10:01 EST by Christine Gregg |
| Location                                                                                          | 42.73676591, -84.58564703                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-02-28                                 |
| Well Identification                                                                               | PW-14-01                                   |
| Well ID                                                                                           | PW-14-01                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | P Cloudy 20's                              |

### Evacuation Details

|                                                                                                                                                                                                                                                                       |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                      | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                              | 6             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                           | 61.8          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                                  | 81.85         |
| Water Column                                                                                                                                                                                                                                                          | 20.05         |
| Gallons in Well                                                                                                                                                                                                                                                       | 29.32         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1 \text{ foot}$ ] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                          | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                                | Bladder       |
| Sample Method                                                                                                                                                                                                                                                         | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                              | 78            |
| Purge Start                                                                                                                                                                                                                                                           | 09:00         |

### @09:00, DTW:61.8, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                         |
|----------------------------|---------------------------------------------------------|
| Reading Time               | 09:00                                                   |
| Rate (mL/min)              | 100                                                     |
| Depth to Water (ft)        | 61.8                                                    |
| Milliliters Purged (total) | 0                                                       |
| parameters                 | @09:00, DTW:61.8, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:05, DTW:61.8, pH:7.26, temp:3.7, cond:2.03, turb:26.1, DO:10.09, redox:129.6

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:05 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.8  |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.26  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 2.03                                                                             |
| Turbidity (NTU)               | 26.1                                                                             |
| Dissolved Oxygen (mg/L)       | 10.09                                                                            |
| Temperature (Degrees Celsius) | 3.7                                                                              |
| Redox (ORP mV)                | 129.6                                                                            |
| parameters                    | @09:05, DTW:61.8, pH:7.26, temp:3.7, cond:2.03, turb:26.1, DO:10.09, redox:129.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:10, DTW:61.85, pH:7.26, temp:4.3, cond:2.01, turb:15.9, DO:8.52, redox:125.1**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 61.85                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.26                                                                             |
| Conductivity (mS/cm)             | 2.01                                                                             |
| Turbidity (NTU)                  | 15.9                                                                             |
| Dissolved Oxygen (mg/L)          | 8.52                                                                             |
| Temperature (Degrees Celsius)    | 4.3                                                                              |
| Redox (ORP mV)                   | 125.1                                                                            |
| parameters                       | @09:10, DTW:61.85, pH:7.26, temp:4.3, cond:2.01, turb:15.9, DO:8.52, redox:125.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:15, DTW:61.85, pH:7.25, temp:4.8, cond:2, turb:12.2, DO:6.25, redox:122**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 09:15                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 100                                                                         |
| Depth to Water (ft)              | 61.85                                                                       |
| Milliliters Purged (total)       | 1500                                                                        |
| pH                               | 7.25                                                                        |
| Conductivity (mS/cm)             | 2                                                                           |
| Turbidity (NTU)                  | 12.2                                                                        |
| Dissolved Oxygen (mg/L)          | 6.25                                                                        |
| Temperature (Degrees Celsius)    | 4.8                                                                         |
| Redox (ORP mV)                   | 122                                                                         |
| parameters                       | @09:15, DTW:61.85, pH:7.25, temp:4.8, cond:2, turb:12.2, DO:6.25, redox:122 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:20, DTW:61.85, pH:7.25, temp:5.2, cond:2.01, turb:8.79, DO:5.15, redox:118.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:20 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                              |
| Depth to Water (ft)           | 61.85                                                                            |
| Milliliters Purged (total)    | 2000                                                                             |
| pH                            | 7.25                                                                             |
| Conductivity (mS/cm)          | 2.01                                                                             |
| Turbidity (NTU)               | 8.79                                                                             |
| Dissolved Oxygen (mg/L)       | 5.15                                                                             |
| Temperature (Degrees Celsius) | 5.2                                                                              |
| Redox (ORP mV)                | 118.2                                                                            |
| parameters                    | @09:20, DTW:61.85, pH:7.25, temp:5.2, cond:2.01, turb:8.79, DO:5.15, redox:118.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:25, DTW:61.85, pH:7.24, temp:5.8, cond:2.01, turb:8.03, DO:4.26, redox:115.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 61.85                                                                            |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 7.24                                                                             |
| Conductivity (mS/cm)             | 2.01                                                                             |
| Turbidity (NTU)                  | 8.03                                                                             |
| Dissolved Oxygen (mg/L)          | 4.26                                                                             |
| Temperature (Degrees Celsius)    | 5.8                                                                              |
| Redox (ORP mV)                   | 115.5                                                                            |
| parameters                       | @09:25, DTW:61.85, pH:7.24, temp:5.8, cond:2.01, turb:8.03, DO:4.26, redox:115.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:30, DTW:61.85, pH:7.23, temp:6.1, cond:1.98, turb:8.34, DO:3.53, redox:113.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 61.85                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 7.23                                                                             |
| Conductivity (mS/cm)             | 1.98                                                                             |
| Turbidity (NTU)                  | 8.34                                                                             |
| Dissolved Oxygen (mg/L)          | 3.53                                                                             |
| Temperature (Degrees Celsius)    | 6.1                                                                              |
| Redox (ORP mV)                   | 113.2                                                                            |
| parameters                       | @09:30, DTW:61.85, pH:7.23, temp:6.1, cond:1.98, turb:8.34, DO:3.53, redox:113.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:35, DTW:61.85, pH:7.23, temp:6.4, cond:2.01, turb:7.43, DO:3.19, redox:110.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 61.85                                                                            |
| Milliliters Purged (total)       | 3500                                                                             |
| pH                               | 7.23                                                                             |
| Conductivity (mS/cm)             | 2.01                                                                             |
| Turbidity (NTU)                  | 7.43                                                                             |
| Dissolved Oxygen (mg/L)          | 3.19                                                                             |
| Temperature (Degrees Celsius)    | 6.4                                                                              |
| Redox (ORP mV)                   | 110.4                                                                            |
| parameters                       | @09:35, DTW:61.85, pH:7.23, temp:6.4, cond:2.01, turb:7.43, DO:3.19, redox:110.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:40, DTW:61.85, pH:7.23, temp:6.8, cond:2, turb:9.54, DO:2.52, redox:107.7**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 61.85                                                                         |
| Milliliters Purged (total)       | 4000                                                                          |
| pH                               | 7.23                                                                          |
| Conductivity (mS/cm)             | 2                                                                             |
| Turbidity (NTU)                  | 9.54                                                                          |
| Dissolved Oxygen (mg/L)          | 2.52                                                                          |
| Temperature (Degrees Celsius)    | 6.8                                                                           |
| Redox (ORP mV)                   | 107.7                                                                         |
| parameters                       | @09:40, DTW:61.85, pH:7.23, temp:6.8, cond:2, turb:9.54, DO:2.52, redox:107.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:45, DTW:61.85, pH:7.23, temp:7.1, cond:2.02, turb:9.32, DO:2.27, redox:105.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.85 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.23  |
| Conductivity (mS/cm)             | 2.02  |
| Turbidity (NTU)                  | 9.32  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 2.27                                                                             |
| Temperature (Degrees Celsius) | 7.1                                                                              |
| Redox (ORP mV)                | 105.9                                                                            |
| parameters                    | @09:45, DTW:61.85, pH:7.23, temp:7.1, cond:2.02, turb:9.32, DO:2.27, redox:105.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### @09:50, DTW:61.85, pH:7.22, temp:7.1, cond:2, turb:9.02, DO:1.93, redox:104.4

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 09:50                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 61.85                                                                         |
| Milliliters Purged (total)       | 5000                                                                          |
| pH                               | 7.22                                                                          |
| Conductivity (mS/cm)             | 2                                                                             |
| Turbidity (NTU)                  | 9.02                                                                          |
| Dissolved Oxygen (mg/L)          | 1.93                                                                          |
| Temperature (Degrees Celsius)    | 7.1                                                                           |
| Redox (ORP mV)                   | 104.4                                                                         |
| parameters                       | @09:50, DTW:61.85, pH:7.22, temp:7.1, cond:2, turb:9.02, DO:1.93, redox:104.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### @09:55, DTW:61.85, pH:7.23, temp:7.5, cond:2.07, turb:8.87, DO:2.34, redox:100.4

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 09:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 61.85                                                                            |
| Milliliters Purged (total)       | 5500                                                                             |
| pH                               | 7.23                                                                             |
| Conductivity (mS/cm)             | 2.07                                                                             |
| Turbidity (NTU)                  | 8.87                                                                             |
| Dissolved Oxygen (mg/L)          | 2.34                                                                             |
| Temperature (Degrees Celsius)    | 7.5                                                                              |
| Redox (ORP mV)                   | 100.4                                                                            |
| parameters                       | @09:55, DTW:61.85, pH:7.23, temp:7.5, cond:2.07, turb:8.87, DO:2.34, redox:100.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 09:55       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 5500        |
| Well Volumes Purged           | 0.05        |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 09:55 |
| Color         | Clear |
| Notable odors | No    |

### 1,4 Dioxane, Nitrate, phosphorus, TKN

|                      |                                       |
|----------------------|---------------------------------------|
| Constituent Sampled  | 1,4 Dioxane, Nitrate, phosphorus, TKN |
| Number of Containers | 5                                     |

### Well Information

|                          |                 |
|--------------------------|-----------------|
| Well Location            | On site Plant 2 |
| Condition of Well        | Good            |
| Well Locked at Arrival   | No              |
| Well Locked at Departure | No              |
| Signature                |                 |

A handwritten signature in black ink, appearing to read 'Zeyl h'.

Signed 2019-02-28 14:25:24 UTC

## 2019-04-08, PW-14-01, PW-14-01

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-04-08 17:17:14 EDT by Daniel Stockard |
| Updated                                                                                           | 2019-04-08 17:45:44 EDT by Christine Gregg |
| Location                                                                                          | 42.73680937, -84.58556548                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Daniel Stockard                            |
| Date                                                                                              | 2019-04-08                                 |
| Well Identification                                                                               | PW-14-01                                   |
| Well ID                                                                                           | PW-14-01                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Sunny, 60s                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 6             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 62.89         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 78            |
| Water Column                                                                                                                                                                                                                                              | 15.11         |
| Gallons in Well                                                                                                                                                                                                                                           | 22.1          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Grab          |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 73            |
| Purge Start                                                                                                                                                                                                                                               | 17:15         |

### @17:20, DTW:62.96, pH:7.53, temp:17.6, cond:2.454, turb:64, DO:3.83, redox:28.7

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 17:20                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 62.96                                                                           |
| pH                            | 7.53                                                                            |
| Conductivity (mS/cm)          | 2.454                                                                           |
| Turbidity (NTU)               | 64                                                                              |
| Dissolved Oxygen (mg/L)       | 3.83                                                                            |
| Temperature (Degrees Celsius) | 17.6                                                                            |
| Redox (ORP mV)                | 28.7                                                                            |
| parameters                    | @17:20, DTW:62.96, pH:7.53, temp:17.6, cond:2.454, turb:64, DO:3.83, redox:28.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @17:25, DTW:63.11, pH:7.3, temp:16.4, cond:2.444, turb:52, DO:0.56, redox:-6.3

|              |       |
|--------------|-------|
| Reading Time | 17:25 |
|--------------|-------|

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 63.11                                                                          |
| pH                               | 7.3                                                                            |
| Conductivity (mS/cm)             | 2.444                                                                          |
| Turbidity (NTU)                  | 52                                                                             |
| Dissolved Oxygen (mg/L)          | 0.56                                                                           |
| Temperature (Degrees Celsius)    | 16.4                                                                           |
| Redox (ORP mV)                   | -6.3                                                                           |
| parameters                       | @17:25, DTW:63.11, pH:7.3, temp:16.4, cond:2.444, turb:52, DO:0.56, redox:-6.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@17:30, DTW:63.07, pH:7.27, temp:16.4, cond:2.434, turb:52, DO:0.24, redox:-9.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 17:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 63.07                                                                           |
| pH                               | 7.27                                                                            |
| Conductivity (mS/cm)             | 2.434                                                                           |
| Turbidity (NTU)                  | 52                                                                              |
| Dissolved Oxygen (mg/L)          | 0.24                                                                            |
| Temperature (Degrees Celsius)    | 16.4                                                                            |
| Redox (ORP mV)                   | -9.1                                                                            |
| parameters                       | @17:30, DTW:63.07, pH:7.27, temp:16.4, cond:2.434, turb:52, DO:0.24, redox:-9.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@17:35, DTW:63.07, pH:7.25, temp:16.4, cond:2.429, turb:63, DO:0.11, redox:-9.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 17:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 63.07                                                                           |
| pH                               | 7.25                                                                            |
| Conductivity (mS/cm)             | 2.429                                                                           |
| Turbidity (NTU)                  | 63                                                                              |
| Dissolved Oxygen (mg/L)          | 0.11                                                                            |
| Temperature (Degrees Celsius)    | 16.4                                                                            |
| Redox (ORP mV)                   | -9.2                                                                            |
| parameters                       | @17:35, DTW:63.07, pH:7.25, temp:16.4, cond:2.429, turb:63, DO:0.11, redox:-9.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@17:40, DTW:63.09, pH:7.24, temp:16.2, cond:2.425, turb:90, DO:0.07, redox:-9.5**



|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 17:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 63.09                                                                           |
| pH                               | 7.24                                                                            |
| Conductivity (mS/cm)             | 2.425                                                                           |
| Turbidity (NTU)                  | 90                                                                              |
| Dissolved Oxygen (mg/L)          | 0.07                                                                            |
| Temperature (Degrees Celsius)    | 16.2                                                                            |
| Redox (ORP mV)                   | -9.5                                                                            |
| parameters                       | @17:40, DTW:63.09, pH:7.24, temp:16.2, cond:2.425, turb:90, DO:0.07, redox:-9.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @17:45, DTW:63.32, pH:7.24, temp:16.1, cond:2.421, turb:92, DO:0.12, redox:-9.8

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 17:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 63.32                                                                           |
| pH                               | 7.24                                                                            |
| Conductivity (mS/cm)             | 2.421                                                                           |
| Turbidity (NTU)                  | 92                                                                              |
| Dissolved Oxygen (mg/L)          | 0.12                                                                            |
| Temperature (Degrees Celsius)    | 16.1                                                                            |
| Redox (ORP mV)                   | -9.8                                                                            |
| parameters                       | @17:45, DTW:63.32, pH:7.24, temp:16.1, cond:2.421, turb:92, DO:0.12, redox:-9.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 17:45   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 1.5     |
| Well Volumes Purged           | 0.07    |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 17:45 |
| Color         | None  |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |      |
|--------------------------|------|
| Well Location            | P2   |
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |
| Signature                |      |

A handwritten signature in black ink, reading "Daniel Stockard". The signature is written in a cursive style with a large, looped "D" and a long, sweeping "S".

Signed 2019-04-08 17:45:43 EDT

## 2019-06-07, PW-14-01, PW-14-01

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-07 13:04:25 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-07 13:26:09 EDT by Christine Gregg   |
| Location                                                                                          | 42.73669, -84.5855956                        |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-07                                   |
| Well Identification                                                                               | PW-14-01                                     |
| Well ID                                                                                           | PW-14-01                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Weather                                                                                           | Sunny, warm                                  |

### Evacuation Details

|                                                                                                                                                                                                                                                                       |                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                      | Top of Casing      |
| Casing Diameter (inches)                                                                                                                                                                                                                                              | 6                  |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                           | 63.35              |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                                  | 81.9               |
| Water Column                                                                                                                                                                                                                                                          | 18.550000000000004 |
| Gallons in Well                                                                                                                                                                                                                                                       | 27.13              |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1 \text{ foot}$ ] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                    |
| Purge Method                                                                                                                                                                                                                                                          | Low-Flow           |
| Type of Equipment used                                                                                                                                                                                                                                                | Bladder            |
| Sample Method                                                                                                                                                                                                                                                         | Low-Flow           |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                              | 72                 |
| Purge Start                                                                                                                                                                                                                                                           | 12:55              |

### @13:05, DTW:63.35, pH:7.16, temp:19.3, cond:2.24, turb:0.02, DO:1.24, redox:53.9

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 13:05                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 63.35                                                                            |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 7.16                                                                             |
| Conductivity (mS/cm)          | 2.24                                                                             |
| Turbidity (NTU)               | 0.02                                                                             |
| Dissolved Oxygen (mg/L)       | 1.24                                                                             |
| Temperature (Degrees Celsius) | 19.3                                                                             |
| Redox (ORP mV)                | 53.9                                                                             |
| parameters                    | @13:05, DTW:63.35, pH:7.16, temp:19.3, cond:2.24, turb:0.02, DO:1.24, redox:53.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:10, DTW:63.35, pH:7.12, temp:19, cond:2.21, turb:0.02, DO:0.36, redox:53.9

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:10                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 63.35                                                                          |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 7.12                                                                           |
| Conductivity (mS/cm)             | 2.21                                                                           |
| Turbidity (NTU)                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)          | 0.36                                                                           |
| Temperature (Degrees Celsius)    | 19                                                                             |
| Redox (ORP mV)                   | 53.9                                                                           |
| parameters                       | @13:10, DTW:63.35, pH:7.12, temp:19, cond:2.21, turb:0.02, DO:0.36, redox:53.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:15, DTW:63.35, pH:7.1, temp:18.8, cond:2.22, turb:0.02, DO:0.27, redox:54.3**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 63.35                                                                           |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.1                                                                             |
| Conductivity (mS/cm)             | 2.22                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.27                                                                            |
| Temperature (Degrees Celsius)    | 18.8                                                                            |
| Redox (ORP mV)                   | 54.3                                                                            |
| parameters                       | @13:15, DTW:63.35, pH:7.1, temp:18.8, cond:2.22, turb:0.02, DO:0.27, redox:54.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:20, DTW:63.35, pH:7.09, temp:18.8, cond:2.2, turb:0.02, DO:0.15, redox:54.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 63.35                                                                           |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 7.09                                                                            |
| Conductivity (mS/cm)             | 2.2                                                                             |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.15                                                                            |
| Temperature (Degrees Celsius)    | 18.8                                                                            |
| Redox (ORP mV)                   | 54.9                                                                            |
| parameters                       | @13:20, DTW:63.35, pH:7.09, temp:18.8, cond:2.2, turb:0.02, DO:0.15, redox:54.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:25, DTW:63.35, pH:7.08, temp:19.1, cond:2.21, turb:0.02, DO:0.16, redox:54.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:25                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 63.35                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.08                                                                             |
| Conductivity (mS/cm)             | 2.21                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.16                                                                             |
| Temperature (Degrees Celsius)    | 19.1                                                                             |
| Redox (ORP mV)                   | 54.8                                                                             |
| parameters                       | @13:25, DTW:63.35, pH:7.08, temp:19.1, cond:2.21, turb:0.02, DO:0.16, redox:54.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:30, DTW:63.35, pH:7.08, temp:19.2, cond:2.21, turb:0.02, DO:0.15, redox:54.9**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:30                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 63.35                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.08                                                                             |
| Conductivity (mS/cm)             | 2.21                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.15                                                                             |
| Temperature (Degrees Celsius)    | 19.2                                                                             |
| Redox (ORP mV)                   | 54.9                                                                             |
| parameters                       | @13:30, DTW:63.35, pH:7.08, temp:19.2, cond:2.21, turb:0.02, DO:0.15, redox:54.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 13:30       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 7000        |
| Well Volumes Purged           | 0.07        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:35 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to be 'ALP' followed by a stylized flourish.

Signed 2019-06-07 17:08:01 UTC

## 2019-12-05, PW-14-01

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-05 14:46:21 UTC by Heather Woodrum |
| Updated                                                                                           | 2019-12-05 15:40:17 UTC by Heather Woodrum |
| Location                                                                                          | 42.736791805404, -84.5855743625058         |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Heather Woodrum                            |
| Date                                                                                              | 2019-12-05                                 |
| Well ID                                                                                           | PW-14-01                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cold, overcast                             |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 6             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 62            |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 77            |
| Water Column                                                                                                                                                                                                                                                 | 15            |
| Gallons in Well                                                                                                                                                                                                                                              | 21.94         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 73            |
| Purge Start                                                                                                                                                                                                                                                  | 10:05         |

### @10:10, DTW:62, pH:6.74, temp:12.8, cond:2.8, turb:21.1, DO:0.51, redox:-246.8

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Reading Time                  | 10:10                                                                          |
| Rate (mL/min)                 | 200                                                                            |
| Depth to Water (ft)           | 62                                                                             |
| pH                            | 6.74                                                                           |
| Conductivity (mS/cm)          | 2.8                                                                            |
| Turbidity (NTU)               | 21.1                                                                           |
| Dissolved Oxygen (mg/L)       | 0.51                                                                           |
| Temperature (Degrees Celsius) | 12.8                                                                           |
| Redox (ORP mV)                | -246.8                                                                         |
| parameters                    | @10:10, DTW:62, pH:6.74, temp:12.8, cond:2.8, turb:21.1, DO:0.51, redox:-246.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:15, DTW:62, pH:6.73, temp:12.6, cond:2.73, turb:19.8, DO:0.42, redox:-278.8

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:15 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 62                                                                              |
| pH                            | 6.73                                                                            |
| Conductivity (mS/cm)          | 2.73                                                                            |
| Turbidity (NTU)               | 19.8                                                                            |
| Dissolved Oxygen (mg/L)       | 0.42                                                                            |
| Temperature (Degrees Celsius) | 12.6                                                                            |
| Redox (ORP mV)                | -278.8                                                                          |
| parameters                    | @10:15, DTW:62, pH:6.73, temp:12.6, cond:2.73, turb:19.8, DO:0.42, redox:-278.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:20, DTW:62, pH:6.71, temp:12.6, cond:2.65, turb:17.5, DO:0.4, redox:-297.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 10:20                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 62                                                                             |
| pH                               | 6.71                                                                           |
| Conductivity (mS/cm)             | 2.65                                                                           |
| Turbidity (NTU)                  | 17.5                                                                           |
| Dissolved Oxygen (mg/L)          | 0.4                                                                            |
| Temperature (Degrees Celsius)    | 12.6                                                                           |
| Redox (ORP mV)                   | -297.1                                                                         |
| parameters                       | @10:20, DTW:62, pH:6.71, temp:12.6, cond:2.65, turb:17.5, DO:0.4, redox:-297.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:25, DTW:62, pH:6.71, temp:12.8, cond:2.52, turb:15.8, DO:0.42, redox:-312.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 62                                                                              |
| pH                               | 6.71                                                                            |
| Conductivity (mS/cm)             | 2.52                                                                            |
| Turbidity (NTU)                  | 15.8                                                                            |
| Dissolved Oxygen (mg/L)          | 0.42                                                                            |
| Temperature (Degrees Celsius)    | 12.8                                                                            |
| Redox (ORP mV)                   | -312.5                                                                          |
| parameters                       | @10:25, DTW:62, pH:6.71, temp:12.8, cond:2.52, turb:15.8, DO:0.42, redox:-312.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:30, DTW:62, pH:6.71, temp:12.6, cond:2.51, turb:14.1, DO:0.42, redox:-317.5**

|              |       |
|--------------|-------|
| Reading Time | 10:30 |
|--------------|-------|



|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 62                                                                              |
| pH                               | 6.71                                                                            |
| Conductivity (mS/cm)             | 2.51                                                                            |
| Turbidity (NTU)                  | 14.1                                                                            |
| Dissolved Oxygen (mg/L)          | 0.42                                                                            |
| Temperature (Degrees Celsius)    | 12.6                                                                            |
| Redox (ORP mV)                   | -317.5                                                                          |
| parameters                       | @10:30, DTW:62, pH:6.71, temp:12.6, cond:2.51, turb:14.1, DO:0.42, redox:-317.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:35, DTW:62, pH:6.71, temp:12.8, cond:2.49, turb:13.5, DO:0.41, redox:-321.6**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 62                                                                              |
| pH                               | 6.71                                                                            |
| Conductivity (mS/cm)             | 2.49                                                                            |
| Turbidity (NTU)                  | 13.5                                                                            |
| Dissolved Oxygen (mg/L)          | 0.41                                                                            |
| Temperature (Degrees Celsius)    | 12.8                                                                            |
| Redox (ORP mV)                   | -321.6                                                                          |
| parameters                       | @10:35, DTW:62, pH:6.71, temp:12.8, cond:2.49, turb:13.5, DO:0.41, redox:-321.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:40, DTW:62, pH:6.77, temp:12.8, cond:2.47, turb:13.3, DO:0.41, redox:-317.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 10:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 62                                                                              |
| pH                               | 6.77                                                                            |
| Conductivity (mS/cm)             | 2.47                                                                            |
| Turbidity (NTU)                  | 13.3                                                                            |
| Dissolved Oxygen (mg/L)          | 0.41                                                                            |
| Temperature (Degrees Celsius)    | 12.8                                                                            |
| Redox (ORP mV)                   | -317.9                                                                          |
| parameters                       | @10:40, DTW:62, pH:6.77, temp:12.8, cond:2.47, turb:13.3, DO:0.41, redox:-317.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 10:40 |
|-----------|-------|

## Sample Information

|               |                    |
|---------------|--------------------|
| Sample Time   | 10:45              |
| Color         | Grayish            |
| Notable odors | Slight sulfur odor |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |
| Signature                |         |

A handwritten signature in black ink, consisting of stylized, overlapping loops and lines, likely representing the initials or full name of the person who signed the document.

Signed 2019-12-05 14:48:13 UTC

## 2019-06-06, PW-14-02, PW-14-02

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-06 11:54:02 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-06 12:55:14 EDT by Christine Gregg   |
| Location                                                                                          | 42.738744, -84.5860405                       |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-06                                   |
| Well Identification                                                                               | PW-14-02                                     |
| Well ID                                                                                           | PW-14-02                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Replicate No. (e.g. Dup)                                                                          | MS/MSD                                       |
| Weather                                                                                           | Overcast, warm                               |

### Evacuation Details

|                                                                                                                                                                                                                                                            |                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                           | Top of Casing      |
| Casing Diameter (inches)                                                                                                                                                                                                                                   | 6                  |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                | 65.46              |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                       | 85                 |
| Water Column                                                                                                                                                                                                                                               | 19.540000000000006 |
| Gallons in Well                                                                                                                                                                                                                                            | 28.58              |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                    |
| Purge Method                                                                                                                                                                                                                                               | Low-Flow           |
| Type of Equipment used                                                                                                                                                                                                                                     | Bladder            |
| Sample Method                                                                                                                                                                                                                                              | Low-Flow           |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                   | 80                 |
| Purge Start                                                                                                                                                                                                                                                | 11:50              |

### @12:00, DTW:73.92, pH:6.99, temp:17.2, cond:2.87, turb:0.02, DO:0.38, redox:42.5

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 12:00                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 73.92                                                                            |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 6.99                                                                             |
| Conductivity (mS/cm)          | 2.87                                                                             |
| Turbidity (NTU)               | 0.02                                                                             |
| Dissolved Oxygen (mg/L)       | 0.38                                                                             |
| Temperature (Degrees Celsius) | 17.2                                                                             |
| Redox (ORP mV)                | 42.5                                                                             |
| parameters                    | @12:00, DTW:73.92, pH:6.99, temp:17.2, cond:2.87, turb:0.02, DO:0.38, redox:42.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:05, DTW:73.92, pH:6.99, temp:17.9, cond:2.86, turb:0.02, DO:0.26, redox:28.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:05                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 200                                                                              |
| Depth to Water (ft)              | 73.92                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 6.99                                                                             |
| Conductivity (mS/cm)             | 2.86                                                                             |
| Turbidity (NTU)                  | 0.02                                                                             |
| Dissolved Oxygen (mg/L)          | 0.26                                                                             |
| Temperature (Degrees Celsius)    | 17.9                                                                             |
| Redox (ORP mV)                   | 28.7                                                                             |
| parameters                       | @12:05, DTW:73.92, pH:6.99, temp:17.9, cond:2.86, turb:0.02, DO:0.26, redox:28.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:10, DTW:73.92, pH:7, temp:17.7, cond:2.86, turb:0.02, DO:0.23, redox:12.3**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 12:10                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 73.92                                                                         |
| Milliliters Purged (total)       | 1000                                                                          |
| pH                               | 7                                                                             |
| Conductivity (mS/cm)             | 2.86                                                                          |
| Turbidity (NTU)                  | 0.02                                                                          |
| Dissolved Oxygen (mg/L)          | 0.23                                                                          |
| Temperature (Degrees Celsius)    | 17.7                                                                          |
| Redox (ORP mV)                   | 12.3                                                                          |
| parameters                       | @12:10, DTW:73.92, pH:7, temp:17.7, cond:2.86, turb:0.02, DO:0.23, redox:12.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:15, DTW:73.92, pH:6.99, temp:18.2, cond:2.87, turb:0.02, DO:0.19, redox:2.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 73.92 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 6.99  |
| Conductivity (mS/cm)             | 2.87  |
| Turbidity (NTU)                  | 0.02  |
| Dissolved Oxygen (mg/L)          | 0.19  |
| Temperature (Degrees Celsius)    | 18.2  |
| Redox (ORP mV)                   | 2.7   |

parameters

@12:15, DTW:73.92, pH:6.99, temp:18.2, cond:2.87, turb:0.02, DO:0.19, redox:2.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:20, DTW:73.92, pH:7, temp:18.4, cond:2.87, turb:0.02, DO:0.13, redox:-8.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 73.92 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7     |
| Conductivity (mS/cm)             | 2.87  |
| Turbidity (NTU)                  | 0.02  |
| Dissolved Oxygen (mg/L)          | 0.13  |
| Temperature (Degrees Celsius)    | 18.4  |
| Redox (ORP mV)                   | -8.3  |

parameters

@12:20, DTW:73.92, pH:7, temp:18.4, cond:2.87, turb:0.02, DO:0.13, redox:-8.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:25, DTW:73.92, pH:7, temp:18.7, cond:2.88, turb:0.02, DO:0.13, redox:-16.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 73.92 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7     |
| Conductivity (mS/cm)             | 2.88  |
| Turbidity (NTU)                  | 0.02  |
| Dissolved Oxygen (mg/L)          | 0.13  |
| Temperature (Degrees Celsius)    | 18.7  |
| Redox (ORP mV)                   | -16.3 |

parameters

@12:25, DTW:73.92, pH:7, temp:18.7, cond:2.88, turb:0.02, DO:0.13, redox:-16.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:30, DTW:73.92, pH:7, temp:18.3, cond:2.87, turb:0.02, DO:0.13, redox:-24.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 73.92 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 7     |
| Conductivity (mS/cm)             | 2.87  |

|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Turbidity (NTU)               | 0.02                                                                           |
| Dissolved Oxygen (mg/L)       | 0.13                                                                           |
| Temperature (Degrees Celsius) | 18.3                                                                           |
| Redox (ORP mV)                | -24.3                                                                          |
| parameters                    | @12:30, DTW:73.92, pH:7, temp:18.3, cond:2.87, turb:0.02, DO:0.13, redox:-24.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:35, DTW:73.92, pH:6.99, temp:19, cond:2.88, turb:0.02, DO:0.12, redox:-32.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 73.92                                                                           |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 6.99                                                                            |
| Conductivity (mS/cm)             | 2.88                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.12                                                                            |
| Temperature (Degrees Celsius)    | 19                                                                              |
| Redox (ORP mV)                   | -32.2                                                                           |
| parameters                       | @12:35, DTW:73.92, pH:6.99, temp:19, cond:2.88, turb:0.02, DO:0.12, redox:-32.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:40, DTW:73.92, pH:7, temp:18.5, cond:2.88, turb:0.02, DO:0.12, redox:-36.6**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:40                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 73.92                                                                          |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 7                                                                              |
| Conductivity (mS/cm)             | 2.88                                                                           |
| Turbidity (NTU)                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)          | 0.12                                                                           |
| Temperature (Degrees Celsius)    | 18.5                                                                           |
| Redox (ORP mV)                   | -36.6                                                                          |
| parameters                       | @12:40, DTW:73.92, pH:7, temp:18.5, cond:2.88, turb:0.02, DO:0.12, redox:-36.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:45, DTW:73.92, pH:6.99, temp:18.8, cond:2.89, turb:0.02, DO:0.12, redox:-37.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Depth to Water (ft)           | 73.92                                                                             |
| Milliliters Purged (total)    | 1000                                                                              |
| pH                            | 6.99                                                                              |
| Conductivity (mS/cm)          | 2.89                                                                              |
| Turbidity (NTU)               | 0.02                                                                              |
| Dissolved Oxygen (mg/L)       | 0.12                                                                              |
| Temperature (Degrees Celsius) | 18.8                                                                              |
| Redox (ORP mV)                | -37.7                                                                             |
| parameters                    | @12:45, DTW:73.92, pH:6.99, temp:18.8, cond:2.89, turb:0.02, DO:0.12, redox:-37.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 12:45       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 10000       |
| Well Volumes Purged           | 0.09        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:50 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of two parts. The first part is a stylized 'H' or 'M' shape, and the second part is a cursive 'P' or 'M' shape.

Signed 2019-06-06 15:56:16 UTC

---



## 2019-12-04, PW-14-02

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-04 14:50:44 UTC by Heather Woodrum |
| Updated                                                                                           | 2019-12-04 15:39:56 UTC by Heather Woodrum |
| Location                                                                                          | 42.7387531288366, -84.586010975842         |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Heather Woodrum                            |
| Date                                                                                              | 2019-12-04                                 |
| Well ID                                                                                           | PW-14-02                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cold, overcast                             |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 6             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 63.73         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 80            |
| Water Column                                                                                                                                                                                                                                                 | 16.27         |
| Gallons in Well                                                                                                                                                                                                                                              | 23.79         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 76            |
| Purge Start                                                                                                                                                                                                                                                  | 10:05         |

### @10:15, DTW:63.75, pH:7.09, temp:11.6, cond:2.57, turb:8.81, DO:0.29, redox:-135.2

|                               |                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------|
| Reading Time                  | 10:15                                                                              |
| Rate (mL/min)                 | 200                                                                                |
| Depth to Water (ft)           | 63.75                                                                              |
| pH                            | 7.09                                                                               |
| Conductivity (mS/cm)          | 2.57                                                                               |
| Turbidity (NTU)               | 8.81                                                                               |
| Dissolved Oxygen (mg/L)       | 0.29                                                                               |
| Temperature (Degrees Celsius) | 11.6                                                                               |
| Redox (ORP mV)                | -135.2                                                                             |
| parameters                    | @10:15, DTW:63.75, pH:7.09, temp:11.6, cond:2.57, turb:8.81, DO:0.29, redox:-135.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:20, DTW:63.75, pH:7.09, temp:11.5, cond:2.57, turb:8.54, DO:0.24, redox:-141.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:20 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                    |
|-------------------------------|------------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                                |
| Depth to Water (ft)           | 63.75                                                                              |
| pH                            | 7.09                                                                               |
| Conductivity (mS/cm)          | 2.57                                                                               |
| Turbidity (NTU)               | 8.54                                                                               |
| Dissolved Oxygen (mg/L)       | 0.24                                                                               |
| Temperature (Degrees Celsius) | 11.5                                                                               |
| Redox (ORP mV)                | -141.9                                                                             |
| parameters                    | @10:20, DTW:63.75, pH:7.09, temp:11.5, cond:2.57, turb:8.54, DO:0.24, redox:-141.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:25, DTW:63.75, pH:7.09, temp:11.3, cond:2.57, turb:7.95, DO:0.25, redox:-145.5**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 10:25                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 63.75                                                                              |
| pH                               | 7.09                                                                               |
| Conductivity (mS/cm)             | 2.57                                                                               |
| Turbidity (NTU)                  | 7.95                                                                               |
| Dissolved Oxygen (mg/L)          | 0.25                                                                               |
| Temperature (Degrees Celsius)    | 11.3                                                                               |
| Redox (ORP mV)                   | -145.5                                                                             |
| parameters                       | @10:25, DTW:63.75, pH:7.09, temp:11.3, cond:2.57, turb:7.95, DO:0.25, redox:-145.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:30, DTW:63.75, pH:7.09, temp:11.6, cond:2.57, turb:7.92, DO:0.24, redox:-148.7**

|                                  |                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------|
| Reading Time                     | 10:30                                                                              |
| Minutes Elapsed between readings | 5                                                                                  |
| Rate (mL/min)                    | 200                                                                                |
| Depth to Water (ft)              | 63.75                                                                              |
| pH                               | 7.09                                                                               |
| Conductivity (mS/cm)             | 2.57                                                                               |
| Turbidity (NTU)                  | 7.92                                                                               |
| Dissolved Oxygen (mg/L)          | 0.24                                                                               |
| Temperature (Degrees Celsius)    | 11.6                                                                               |
| Redox (ORP mV)                   | -148.7                                                                             |
| parameters                       | @10:30, DTW:63.75, pH:7.09, temp:11.6, cond:2.57, turb:7.92, DO:0.24, redox:-148.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 10:35 |
|-----------|-------|

## **Sample Information**

|               |       |
|---------------|-------|
| Sample Time   | 10:40 |
| Color         | Clear |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |
| Signature                |         |

A handwritten signature in black ink, consisting of stylized, overlapping loops and a long horizontal stroke at the end.

Signed 2019-12-04 14:52:26 UTC

## 2019-06-04, PW-14-03, PW-14-03

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-04 12:41:08 EDT by Donald Richmond |
| Updated                                                                                           | 2019-06-04 13:17:44 EDT by Christine Gregg |
| Location                                                                                          | 42.7421149, -84.58799422                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-04                                 |
| Well Identification                                                                               | PW-14-03                                   |
| Well ID                                                                                           | PW-14-03                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | MSMSD                                      |
| Weather                                                                                           | 70                                         |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 69.4          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Purge Start                                                                                                                                                                                                                                                  | 00:30         |

### @12:41, DTW:70.7, pH:6.33, temp:18.3, cond:3.67, turb:22.4, DO:0.45, redox:-60.7

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 12:41                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 70.7                                                                             |
| pH                            | 6.33                                                                             |
| Conductivity (mS/cm)          | 3.67                                                                             |
| Turbidity (NTU)               | 22.4                                                                             |
| Dissolved Oxygen (mg/L)       | 0.45                                                                             |
| Temperature (Degrees Celsius) | 18.3                                                                             |
| Redox (ORP mV)                | -60.7                                                                            |
| parameters                    | @12:41, DTW:70.7, pH:6.33, temp:18.3, cond:3.67, turb:22.4, DO:0.45, redox:-60.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:44, DTW:70.7, pH:6.31, temp:18.3, cond:3.62, turb:13.2, DO:0.43, redox:-60.4

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:44 |
| Minutes Elapsed between readings | 3     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 70.7  |

|                               |       |
|-------------------------------|-------|
| pH                            | 6.31  |
| Conductivity (mS/cm)          | 3.62  |
| Turbidity (NTU)               | 13.2  |
| Dissolved Oxygen (mg/L)       | 0.43  |
| Temperature (Degrees Celsius) | 18.3  |
| Redox (ORP mV)                | -60.4 |

parameters @12:44, DTW:70.7, pH:6.31, temp:18.3, cond:3.62, turb:13.2, DO:0.43, redox:-60.4

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:47, DTW:70.7, pH:6.3, temp:18, cond:3.56, turb:8.91, DO:0.41, redox:-59.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:47 |
| Minutes Elapsed between readings | 3     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 70.7  |
| pH                               | 6.3   |
| Conductivity (mS/cm)             | 3.56  |
| Turbidity (NTU)                  | 8.91  |
| Dissolved Oxygen (mg/L)          | 0.41  |
| Temperature (Degrees Celsius)    | 18    |
| Redox (ORP mV)                   | -59.2 |

parameters @12:47, DTW:70.7, pH:6.3, temp:18, cond:3.56, turb:8.91, DO:0.41, redox:-59.2

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:50, DTW:70.7, pH:6.3, temp:18.4, cond:3.51, turb:9.35, DO:0.4, redox:-59.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:50 |
| Minutes Elapsed between readings | 3     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 70.7  |
| pH                               | 6.3   |
| Conductivity (mS/cm)             | 3.51  |
| Turbidity (NTU)                  | 9.35  |
| Dissolved Oxygen (mg/L)          | 0.4   |
| Temperature (Degrees Celsius)    | 18.4  |
| Redox (ORP mV)                   | -59.6 |

parameters @12:50, DTW:70.7, pH:6.3, temp:18.4, cond:3.51, turb:9.35, DO:0.4, redox:-59.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:52, DTW:70.7, pH:6.29, temp:18.5, cond:3.44, turb:7.99, DO:0.42, redox:-61.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:52 |
| Minutes Elapsed between readings | 2     |
| Rate (mL/min)                    | 200   |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Depth to Water (ft)           | 70.7                                                                             |
| pH                            | 6.29                                                                             |
| Conductivity (mS/cm)          | 3.44                                                                             |
| Turbidity (NTU)               | 7.99                                                                             |
| Dissolved Oxygen (mg/L)       | 0.42                                                                             |
| Temperature (Degrees Celsius) | 18.5                                                                             |
| Redox (ORP mV)                | -61.7                                                                            |
| parameters                    | @12:52, DTW:70.7, pH:6.29, temp:18.5, cond:3.44, turb:7.99, DO:0.42, redox:-61.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:55, DTW:70.7, pH:6.29, temp:18.9, cond:3.41, turb:5.38, DO:0.3, redox:-63.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:55                                                                           |
| Minutes Elapsed between readings | 3                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 70.7                                                                            |
| pH                               | 6.29                                                                            |
| Conductivity (mS/cm)             | 3.41                                                                            |
| Turbidity (NTU)                  | 5.38                                                                            |
| Dissolved Oxygen (mg/L)          | 0.3                                                                             |
| Temperature (Degrees Celsius)    | 18.9                                                                            |
| Redox (ORP mV)                   | -63.5                                                                           |
| parameters                       | @12:55, DTW:70.7, pH:6.29, temp:18.9, cond:3.41, turb:5.38, DO:0.3, redox:-63.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:58, DTW:70.7, pH:6.28, temp:19.8, cond:3.36, turb:6.52, DO:0.33, redox:-59**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:58                                                                          |
| Minutes Elapsed between readings | 3                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 70.7                                                                           |
| pH                               | 6.28                                                                           |
| Conductivity (mS/cm)             | 3.36                                                                           |
| Turbidity (NTU)                  | 6.52                                                                           |
| Dissolved Oxygen (mg/L)          | 0.33                                                                           |
| Temperature (Degrees Celsius)    | 19.8                                                                           |
| Redox (ORP mV)                   | -59                                                                            |
| parameters                       | @12:58, DTW:70.7, pH:6.28, temp:19.8, cond:3.36, turb:6.52, DO:0.33, redox:-59 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 13:00   |
| Total Volume Measured (units) | Gallons |
| Total Gallons Purged          | 2       |

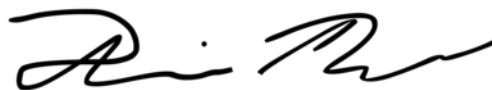
## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:00 |
| Color         | Clear |
| Notable odors | None  |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to be 'D. M.' or similar, written in a cursive style.

Signed 2019-06-04 17:12:53 UTC

## 2019-08-27, PW-14-03, PW-14-03

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-08-27 13:43:28 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-08-27 14:30:52 EDT by Christine Gregg |
| Location                                                                                          | 42.7421224, -84.58801744                   |
| Project Number                                                                                    | 12345678.9876                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-08-27                                 |
| Well Identification                                                                               | PW-14-03                                   |
| Well ID                                                                                           | PW-14-03                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | DUP-01                                     |
| Weather                                                                                           | Mostly Cloudy, Humid, Breezy, 70's         |

## Evacuation Details

|                                                                                                                                                                                                                                                                     |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                                    | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                            | 6             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                         | 67.61         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                                | 94.3          |
| Water Column                                                                                                                                                                                                                                                        | 26.69         |
| Gallons in Well                                                                                                                                                                                                                                                     | 39.03         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1 \text{ foot}$ ] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                        | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                              | Bladder       |
| Sample Method                                                                                                                                                                                                                                                       | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                            | 92            |
| Purge Start                                                                                                                                                                                                                                                         | 13:40         |

## @13:40, DTW:67.61, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 13:40                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 67.61                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @13:40, DTW:67.61, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

## @13:45, DTW:67.69, pH:6.27, temp:23.7, cond:3.1, turb:217, DO:0.92, redox:-3.7

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 67.69 |
| Milliliters Purged (total)       | 500   |



|                               |      |
|-------------------------------|------|
| pH                            | 6.27 |
| Conductivity (mS/cm)          | 3.1  |
| Turbidity (NTU)               | 217  |
| Dissolved Oxygen (mg/L)       | 0.92 |
| Temperature (Degrees Celsius) | 23.7 |
| Redox (ORP mV)                | -3.7 |

parameters @13:45, DTW:67.69, pH:6.27, temp:23.7, cond:3.1, turb:217, DO:0.92, redox:-3.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:50, DTW:67.72, pH:6.27, temp:23.7, cond:3.11, turb:284, DO:0.87, redox:-6.5**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 67.72 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 6.27  |
| Conductivity (mS/cm)             | 3.11  |
| Turbidity (NTU)                  | 284   |
| Dissolved Oxygen (mg/L)          | 0.87  |
| Temperature (Degrees Celsius)    | 23.7  |
| Redox (ORP mV)                   | -6.5  |

parameters @13:50, DTW:67.72, pH:6.27, temp:23.7, cond:3.11, turb:284, DO:0.87, redox:-6.5

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:55, DTW:67.72, pH:6.27, temp:23.7, cond:3.11, turb:205, DO:0.87, redox:-8.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 67.72 |
| Milliliters Purged (total)       | 1500  |
| pH                               | 6.27  |
| Conductivity (mS/cm)             | 3.11  |
| Turbidity (NTU)                  | 205   |
| Dissolved Oxygen (mg/L)          | 0.87  |
| Temperature (Degrees Celsius)    | 23.7  |
| Redox (ORP mV)                   | -8.3  |

parameters @13:55, DTW:67.72, pH:6.27, temp:23.7, cond:3.11, turb:205, DO:0.87, redox:-8.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:00, DTW:67.72, pH:6.27, temp:23.7, cond:3.09, turb:168, DO:0.85, redox:-10.3**

|              |       |
|--------------|-------|
| Reading Time | 14:00 |
|--------------|-------|

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 67.72                                                                            |
| Milliliters Purged (total)       | 2000                                                                             |
| pH                               | 6.27                                                                             |
| Conductivity (mS/cm)             | 3.09                                                                             |
| Turbidity (NTU)                  | 168                                                                              |
| Dissolved Oxygen (mg/L)          | 0.85                                                                             |
| Temperature (Degrees Celsius)    | 23.7                                                                             |
| Redox (ORP mV)                   | -10.3                                                                            |
| parameters                       | @14:00, DTW:67.72, pH:6.27, temp:23.7, cond:3.09, turb:168, DO:0.85, redox:-10.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:05, DTW:67.72, pH:6.27, temp:23.7, cond:3.09, turb:135, DO:0.83, redox:-11.8**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:05                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 67.72                                                                            |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 6.27                                                                             |
| Conductivity (mS/cm)             | 3.09                                                                             |
| Turbidity (NTU)                  | 135                                                                              |
| Dissolved Oxygen (mg/L)          | 0.83                                                                             |
| Temperature (Degrees Celsius)    | 23.7                                                                             |
| Redox (ORP mV)                   | -11.8                                                                            |
| parameters                       | @14:05, DTW:67.72, pH:6.27, temp:23.7, cond:3.09, turb:135, DO:0.83, redox:-11.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:10, DTW:67.72, pH:6.27, temp:23.7, cond:3.09, turb:121, DO:0.81, redox:-13.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 67.72                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 6.27                                                                             |
| Conductivity (mS/cm)             | 3.09                                                                             |
| Turbidity (NTU)                  | 121                                                                              |
| Dissolved Oxygen (mg/L)          | 0.81                                                                             |
| Temperature (Degrees Celsius)    | 23.7                                                                             |
| Redox (ORP mV)                   | -13.2                                                                            |
| parameters                       | @14:10, DTW:67.72, pH:6.27, temp:23.7, cond:3.09, turb:121, DO:0.81, redox:-13.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:15, DTW:67.72, pH:6.27, temp:23.6, cond:3.09, turb:86.2, DO:0.78, redox:-14.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 67.72                                                                             |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 6.27                                                                              |
| Conductivity (mS/cm)             | 3.09                                                                              |
| Turbidity (NTU)                  | 86.2                                                                              |
| Dissolved Oxygen (mg/L)          | 0.78                                                                              |
| Temperature (Degrees Celsius)    | 23.6                                                                              |
| Redox (ORP mV)                   | -14.4                                                                             |
| parameters                       | @14:15, DTW:67.72, pH:6.27, temp:23.6, cond:3.09, turb:86.2, DO:0.78, redox:-14.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:20, DTW:67.72, pH:6.27, temp:23.6, cond:3.09, turb:38.1, DO:0.74, redox:-18.8**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 67.72                                                                             |
| Milliliters Purged (total)       | 4000                                                                              |
| pH                               | 6.27                                                                              |
| Conductivity (mS/cm)             | 3.09                                                                              |
| Turbidity (NTU)                  | 38.1                                                                              |
| Dissolved Oxygen (mg/L)          | 0.74                                                                              |
| Temperature (Degrees Celsius)    | 23.6                                                                              |
| Redox (ORP mV)                   | -18.8                                                                             |
| parameters                       | @14:20, DTW:67.72, pH:6.27, temp:23.6, cond:3.09, turb:38.1, DO:0.74, redox:-18.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:25, DTW:67.72, pH:6.27, temp:23.7, cond:3.08, turb:28.2, DO:0.66, redox:-20.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 67.72 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.27  |
| Conductivity (mS/cm)             | 3.08  |
| Turbidity (NTU)                  | 28.2  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 0.66                                                                              |
| Temperature (Degrees Celsius) | 23.7                                                                              |
| Redox (ORP mV)                | -20.4                                                                             |
| parameters                    | @14:25, DTW:67.72, pH:6.27, temp:23.7, cond:3.08, turb:28.2, DO:0.66, redox:-20.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:30, DTW:67.72, pH:6.27, temp:23.8, cond:3.08, turb:15.7, DO:0.65, redox:-21.4**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:30                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 67.72                                                                             |
| Milliliters Purged (total)       | 5000                                                                              |
| pH                               | 6.27                                                                              |
| Conductivity (mS/cm)             | 3.08                                                                              |
| Turbidity (NTU)                  | 15.7                                                                              |
| Dissolved Oxygen (mg/L)          | 0.65                                                                              |
| Temperature (Degrees Celsius)    | 23.8                                                                              |
| Redox (ORP mV)                   | -21.4                                                                             |
| parameters                       | @14:30, DTW:67.72, pH:6.27, temp:23.8, cond:3.08, turb:15.7, DO:0.65, redox:-21.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:35, DTW:67.72, pH:6.27, temp:23.8, cond:3.09, turb:15.1, DO:0.65, redox:-22.3**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 14:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 67.72                                                                             |
| Milliliters Purged (total)       | 5500                                                                              |
| pH                               | 6.27                                                                              |
| Conductivity (mS/cm)             | 3.09                                                                              |
| Turbidity (NTU)                  | 15.1                                                                              |
| Dissolved Oxygen (mg/L)          | 0.65                                                                              |
| Temperature (Degrees Celsius)    | 23.8                                                                              |
| Redox (ORP mV)                   | -22.3                                                                             |
| parameters                       | @14:35, DTW:67.72, pH:6.27, temp:23.8, cond:3.09, turb:15.1, DO:0.65, redox:-22.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:40, DTW:67.72, pH:6.28, temp:23.7, cond:3.09, turb:15.4, DO:0.64, redox:-23.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 67.72 |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Milliliters Purged (total)                                                                                                                                                                                                                                                                                                                       | 6000                                                                              |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.28                                                                              |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 3.09                                                                              |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 15.4                                                                              |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 0.64                                                                              |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 23.7                                                                              |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | -23.1                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @14:40, DTW:67.72, pH:6.28, temp:23.7, cond:3.09, turb:15.4, DO:0.64, redox:-23.1 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                   |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 14:40                                                                             |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                       |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6000                                                                              |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.04                                                                              |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:40 |
| Color         | Clear |
| Notable odors | No    |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 6           |
| Preservative         | HCL         |

## P, TKN

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | P, TKN         |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | H2SO4          |

## Nitrate

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | Nitrate        |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Photo of Well



Comments

Didn't meet drawdown requirements

Signature

3u/h

Signed 2019-08-27 17:46:50 UTC

## 2019-12-05, PW-14-03

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-05 19:35:59 UTC by Billy Cobern |
| Updated                                                                                           | 2019-12-05 19:56:22 UTC by Billy Cobern |
| Location                                                                                          | 42.7420926886077, -84.5880198665751     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-12-05                              |
| Well ID                                                                                           | PW-14-03                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Cloudy 30's                             |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 6             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 66.75         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 94.25         |
| Water Column                                                                                                                                                                                                                                                 | 27.5          |
| Gallons in Well                                                                                                                                                                                                                                              | 40.22         |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 91.5          |
| Purge Start                                                                                                                                                                                                                                                  | 14:30         |

### @14:30, DTW:66.75, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 14:30                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 66.75                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @14:30, DTW:66.75, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @14:35, DTW:66.76, pH:6.51, temp:8.8, cond:2.73, turb:64, DO:4.1, redox:107.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:35 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 66.76 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.51  |
| Conductivity (mS/cm)             | 2.73  |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Turbidity (NTU)               | 64                                                                            |
| Dissolved Oxygen (mg/L)       | 4.1                                                                           |
| Temperature (Degrees Celsius) | 8.8                                                                           |
| Redox (ORP mV)                | 107.1                                                                         |
| parameters                    | @14:35, DTW:66.76, pH:6.51, temp:8.8, cond:2.73, turb:64, DO:4.1, redox:107.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:40, DTW:66.76, pH:6.47, temp:8.7, cond:2.74, turb:59.7, DO:2.36, redox:112.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 66.76                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 6.47                                                                             |
| Conductivity (mS/cm)             | 2.74                                                                             |
| Turbidity (NTU)                  | 59.7                                                                             |
| Dissolved Oxygen (mg/L)          | 2.36                                                                             |
| Temperature (Degrees Celsius)    | 8.7                                                                              |
| Redox (ORP mV)                   | 112.4                                                                            |
| parameters                       | @14:40, DTW:66.76, pH:6.47, temp:8.7, cond:2.74, turb:59.7, DO:2.36, redox:112.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:45, DTW:66.76, pH:6.45, temp:8.6, cond:2.74, turb:42.8, DO:1.56, redox:116.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 14:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 66.76                                                                            |
| Milliliters Purged (total)       | 1500                                                                             |
| pH                               | 6.45                                                                             |
| Conductivity (mS/cm)             | 2.74                                                                             |
| Turbidity (NTU)                  | 42.8                                                                             |
| Dissolved Oxygen (mg/L)          | 1.56                                                                             |
| Temperature (Degrees Celsius)    | 8.6                                                                              |
| Redox (ORP mV)                   | 116.3                                                                            |
| parameters                       | @14:45, DTW:66.76, pH:6.45, temp:8.6, cond:2.74, turb:42.8, DO:1.56, redox:116.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:50, DTW:66.76, pH:6.45, temp:8.8, cond:2.73, turb:21.1, DO:1.24, redox:118.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |



|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Depth to Water (ft)           | 66.76                                                                            |
| Milliliters Purged (total)    | 2000                                                                             |
| pH                            | 6.45                                                                             |
| Conductivity (mS/cm)          | 2.73                                                                             |
| Turbidity (NTU)               | 21.1                                                                             |
| Dissolved Oxygen (mg/L)       | 1.24                                                                             |
| Temperature (Degrees Celsius) | 8.8                                                                              |
| Redox (ORP mV)                | 118.4                                                                            |
| parameters                    | @14:50, DTW:66.76, pH:6.45, temp:8.8, cond:2.73, turb:21.1, DO:1.24, redox:118.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@14:55, DTW:66.76, pH:6.44, temp:8.9, cond:2.73, turb:16.8, DO:1.1, redox:120**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:55                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 66.76                                                                         |
| Milliliters Purged (total)       | 2500                                                                          |
| pH                               | 6.44                                                                          |
| Conductivity (mS/cm)             | 2.73                                                                          |
| Turbidity (NTU)                  | 16.8                                                                          |
| Dissolved Oxygen (mg/L)          | 1.1                                                                           |
| Temperature (Degrees Celsius)    | 8.9                                                                           |
| Redox (ORP mV)                   | 120                                                                           |
| parameters                       | @14:55, DTW:66.76, pH:6.44, temp:8.9, cond:2.73, turb:16.8, DO:1.1, redox:120 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@15:00, DTW:66.76, pH:6.44, temp:8.9, cond:2.73, turb:12.3, DO:1.07, redox:120.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 66.76                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 6.44                                                                             |
| Conductivity (mS/cm)             | 2.73                                                                             |
| Turbidity (NTU)                  | 12.3                                                                             |
| Dissolved Oxygen (mg/L)          | 1.07                                                                             |
| Temperature (Degrees Celsius)    | 8.9                                                                              |
| Redox (ORP mV)                   | 120.2                                                                            |
| parameters                       | @15:00, DTW:66.76, pH:6.44, temp:8.9, cond:2.73, turb:12.3, DO:1.07, redox:120.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:05, DTW:66.76, pH:6.44, temp:8.9, cond:2.73, turb:9.87, DO:1.08, redox:120.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:05                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 66.76                                                                            |
| Milliliters Purged (total)       | 3500                                                                             |
| pH                               | 6.44                                                                             |
| Conductivity (mS/cm)             | 2.73                                                                             |
| Turbidity (NTU)                  | 9.87                                                                             |
| Dissolved Oxygen (mg/L)          | 1.08                                                                             |
| Temperature (Degrees Celsius)    | 8.9                                                                              |
| Redox (ORP mV)                   | 120.4                                                                            |
| parameters                       | @15:05, DTW:66.76, pH:6.44, temp:8.9, cond:2.73, turb:9.87, DO:1.08, redox:120.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:10, DTW:66.76, pH:6.44, temp:8.9, cond:2.73, turb:9.23, DO:1.05, redox:120.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 15:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 66.76                                                                            |
| Milliliters Purged (total)       | 4000                                                                             |
| pH                               | 6.44                                                                             |
| Conductivity (mS/cm)             | 2.73                                                                             |
| Turbidity (NTU)                  | 9.23                                                                             |
| Dissolved Oxygen (mg/L)          | 1.05                                                                             |
| Temperature (Degrees Celsius)    | 8.9                                                                              |
| Redox (ORP mV)                   | 120.6                                                                            |
| parameters                       | @15:10, DTW:66.76, pH:6.44, temp:8.9, cond:2.73, turb:9.23, DO:1.05, redox:120.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@15:15, DTW:66.76, pH:6.44, temp:8.9, cond:2.73, turb:8.96, DO:1.04, redox:120.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 15:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 66.76 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.44  |
| Conductivity (mS/cm)             | 2.73  |
| Turbidity (NTU)                  | 8.96  |
| Dissolved Oxygen (mg/L)          | 1.04  |
| Temperature (Degrees Celsius)    | 8.9   |
| Redox (ORP mV)                   | 120.8 |

parameters

@15:15, DTW:66.76, pH:6.44, temp:8.9, cond:2.73, turb:8.96, DO:1.04, redox:120.8

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 15:15 |
|-----------|-------|

|                               |             |
|-------------------------------|-------------|
| Total Volume Measured (units) | Milliliters |
|-------------------------------|-------------|

|                          |      |
|--------------------------|------|
| Total Milliliters Purged | 4500 |
|--------------------------|------|

|                     |      |
|---------------------|------|
| Well Volumes Purged | 0.03 |
|---------------------|------|

## Sample Information

|             |       |
|-------------|-------|
| Sample Time | 15:15 |
|-------------|-------|

|       |       |
|-------|-------|
| Color | Clear |
|-------|-------|

|               |    |
|---------------|----|
| Notable odors | No |
|---------------|----|

## 1,4-Dioxane

|                     |             |
|---------------------|-------------|
| Constituent Sampled | 1,4-Dioxane |
|---------------------|-------------|

|                |            |
|----------------|------------|
| Container Type | 40 mL Vial |
|----------------|------------|

|                      |   |
|----------------------|---|
| Number of Containers | 3 |
|----------------------|---|

|              |     |
|--------------|-----|
| Preservative | HCL |
|--------------|-----|

## Well Information

|               |         |
|---------------|---------|
| Well Location | Plant 3 |
|---------------|---------|

|                   |      |
|-------------------|------|
| Condition of Well | Good |
|-------------------|------|

|                        |     |
|------------------------|-----|
| Well Locked at Arrival | Yes |
|------------------------|-----|

|                          |     |
|--------------------------|-----|
| Well Locked at Departure | Yes |
|--------------------------|-----|

Signature

A handwritten signature in black ink, appearing to be '34/L' or similar, written in a cursive style.

Signed 2019-12-05 19:37:50 UTC

## 2019-02-28, TW-14-01, TW-14-01

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-02-28 11:42:15 EST by Billy Cobern    |
| Updated                                                                                           | 2019-02-28 11:57:13 EST by Christine Gregg |
| Location                                                                                          | 42.73678556, -84.58572448                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-02-28                                 |
| Well Identification                                                                               | TW-14-01                                   |
| Well ID                                                                                           | TW-14-01                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | M Cloudy 20's                              |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 65.65         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 78            |
| Water Column                                                                                                                                                                                                                                              | 12.35         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.01          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 75.5          |
| Purge Start                                                                                                                                                                                                                                               | 11:55         |

### @11:55, DTW:65.65, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 11:55                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 65.65                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @11:55, DTW:65.65, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:00, DTW:65.65, pH:7.53, temp:5.8, cond:1.27, turb:98.5, DO:9.82, redox:82.3

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 65.65 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.53  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 1.27                                                                            |
| Turbidity (NTU)               | 98.5                                                                            |
| Dissolved Oxygen (mg/L)       | 9.82                                                                            |
| Temperature (Degrees Celsius) | 5.8                                                                             |
| Redox (ORP mV)                | 82.3                                                                            |
| parameters                    | @12:00, DTW:65.65, pH:7.53, temp:5.8, cond:1.27, turb:98.5, DO:9.82, redox:82.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:05, DTW:65.65, pH:7.31, temp:6.1, cond:2.4, turb:156, DO:7.73, redox:83**

|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Reading Time                     | 12:05                                                                       |
| Minutes Elapsed between readings | 5                                                                           |
| Rate (mL/min)                    | 100                                                                         |
| Depth to Water (ft)              | 65.65                                                                       |
| Milliliters Purged (total)       | 100                                                                         |
| pH                               | 7.31                                                                        |
| Conductivity (mS/cm)             | 2.4                                                                         |
| Turbidity (NTU)                  | 156                                                                         |
| Dissolved Oxygen (mg/L)          | 7.73                                                                        |
| Temperature (Degrees Celsius)    | 6.1                                                                         |
| Redox (ORP mV)                   | 83                                                                          |
| parameters                       | @12:05, DTW:65.65, pH:7.31, temp:6.1, cond:2.4, turb:156, DO:7.73, redox:83 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:10, DTW:65.65, pH:7.22, temp:6.1, cond:2.41, turb:107, DO:7.06, redox:83.3**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:10                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 65.65                                                                          |
| Milliliters Purged (total)       | 1500                                                                           |
| pH                               | 7.22                                                                           |
| Conductivity (mS/cm)             | 2.41                                                                           |
| Turbidity (NTU)                  | 107                                                                            |
| Dissolved Oxygen (mg/L)          | 7.06                                                                           |
| Temperature (Degrees Celsius)    | 6.1                                                                            |
| Redox (ORP mV)                   | 83.3                                                                           |
| parameters                       | @12:10, DTW:65.65, pH:7.22, temp:6.1, cond:2.41, turb:107, DO:7.06, redox:83.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:15, DTW:65.65, pH:7.17, temp:6.4, cond:2.41, turb:89.5, DO:6.27, redox:83.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:15 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                             |
| Depth to Water (ft)           | 65.65                                                                           |
| Milliliters Purged (total)    | 2000                                                                            |
| pH                            | 7.17                                                                            |
| Conductivity (mS/cm)          | 2.41                                                                            |
| Turbidity (NTU)               | 89.5                                                                            |
| Dissolved Oxygen (mg/L)       | 6.27                                                                            |
| Temperature (Degrees Celsius) | 6.4                                                                             |
| Redox (ORP mV)                | 83.3                                                                            |
| parameters                    | @12:15, DTW:65.65, pH:7.17, temp:6.4, cond:2.41, turb:89.5, DO:6.27, redox:83.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:20, DTW:65.65, pH:7.15, temp:6.5, cond:2.4, turb:76.8, DO:5.83, redox:83.3**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                          |
| Minutes Elapsed between readings | 65                                                                             |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 65.65                                                                          |
| Milliliters Purged (total)       | 2500                                                                           |
| pH                               | 7.15                                                                           |
| Conductivity (mS/cm)             | 2.4                                                                            |
| Turbidity (NTU)                  | 76.8                                                                           |
| Dissolved Oxygen (mg/L)          | 5.83                                                                           |
| Temperature (Degrees Celsius)    | 6.5                                                                            |
| Redox (ORP mV)                   | 83.3                                                                           |
| parameters                       | @13:20, DTW:65.65, pH:7.15, temp:6.5, cond:2.4, turb:76.8, DO:5.83, redox:83.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:25, DTW:65.65, pH:7.14, temp:6.4, cond:2.39, turb:71.1, DO:5.61, redox:83.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:25                                                                           |
| Minutes Elapsed between readings | 1385                                                                            |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 65.65                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.14                                                                            |
| Conductivity (mS/cm)             | 2.39                                                                            |
| Turbidity (NTU)                  | 71.1                                                                            |
| Dissolved Oxygen (mg/L)          | 5.61                                                                            |
| Temperature (Degrees Celsius)    | 6.4                                                                             |
| Redox (ORP mV)                   | 83.2                                                                            |
| parameters                       | @12:25, DTW:65.65, pH:7.14, temp:6.4, cond:2.39, turb:71.1, DO:5.61, redox:83.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:30, DTW:65.65, pH:7.14, temp:6.6, cond:2.39, turb:66.1, DO:5.64, redox:83.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 65.65                                                                           |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 7.14                                                                            |
| Conductivity (mS/cm)             | 2.39                                                                            |
| Turbidity (NTU)                  | 66.1                                                                            |
| Dissolved Oxygen (mg/L)          | 5.64                                                                            |
| Temperature (Degrees Celsius)    | 6.6                                                                             |
| Redox (ORP mV)                   | 83.2                                                                            |
| parameters                       | @12:30, DTW:65.65, pH:7.14, temp:6.6, cond:2.39, turb:66.1, DO:5.64, redox:83.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:35, DTW:65.65, pH:7.15, temp:6.7, cond:2.39, turb:54.2, DO:5.71, redox:83.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 65.65                                                                           |
| Milliliters Purged (total)       | 4000                                                                            |
| pH                               | 7.15                                                                            |
| Conductivity (mS/cm)             | 2.39                                                                            |
| Turbidity (NTU)                  | 54.2                                                                            |
| Dissolved Oxygen (mg/L)          | 5.71                                                                            |
| Temperature (Degrees Celsius)    | 6.7                                                                             |
| Redox (ORP mV)                   | 83.1                                                                            |
| parameters                       | @12:35, DTW:65.65, pH:7.15, temp:6.7, cond:2.39, turb:54.2, DO:5.71, redox:83.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:40, DTW:65.65, pH:7.16, temp:6.6, cond:2.41, turb:43.2, DO:6, redox:83**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 65.65 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.16  |
| Conductivity (mS/cm)             | 2.41  |
| Turbidity (NTU)                  | 43.2  |

|                               |                                                                            |
|-------------------------------|----------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 6                                                                          |
| Temperature (Degrees Celsius) | 6.6                                                                        |
| Redox (ORP mV)                | 83                                                                         |
| parameters                    | @12:40, DTW:65.65, pH:7.16, temp:6.6, cond:2.41, turb:43.2, DO:6, redox:83 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:45, DTW:65.65, pH:7.18, temp:6.8, cond:2.42, turb:32.9, DO:6.04, redox:83.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 65.65                                                                           |
| Milliliters Purged (total)       | 5000                                                                            |
| pH                               | 7.18                                                                            |
| Conductivity (mS/cm)             | 2.42                                                                            |
| Turbidity (NTU)                  | 32.9                                                                            |
| Dissolved Oxygen (mg/L)          | 6.04                                                                            |
| Temperature (Degrees Celsius)    | 6.8                                                                             |
| Redox (ORP mV)                   | 83.1                                                                            |
| parameters                       | @12:45, DTW:65.65, pH:7.18, temp:6.8, cond:2.42, turb:32.9, DO:6.04, redox:83.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:50, DTW:65.65, pH:7.18, temp:6.5, cond:2.41, turb:25.9, DO:5.97, redox:83.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:50                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 65.65                                                                           |
| Milliliters Purged (total)       | 5500                                                                            |
| pH                               | 7.18                                                                            |
| Conductivity (mS/cm)             | 2.41                                                                            |
| Turbidity (NTU)                  | 25.9                                                                            |
| Dissolved Oxygen (mg/L)          | 5.97                                                                            |
| Temperature (Degrees Celsius)    | 6.5                                                                             |
| Redox (ORP mV)                   | 83.2                                                                            |
| parameters                       | @12:50, DTW:65.65, pH:7.18, temp:6.5, cond:2.41, turb:25.9, DO:5.97, redox:83.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:55, DTW:65.65, pH:7.19, temp:6.5, cond:2.4, turb:45.9, DO:5.88, redox:83.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 65.65 |



|                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Milliliters Purged (total)                                                                                                                                                                                                                                                                                                                       | 6000                                                                           |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.19                                                                           |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 2.4                                                                            |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 45.9                                                                           |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 5.88                                                                           |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 6.5                                                                            |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 83.1                                                                           |
| parameters                                                                                                                                                                                                                                                                                                                                       | @12:55, DTW:65.65, pH:7.19, temp:6.5, cond:2.4, turb:45.9, DO:5.88, redox:83.1 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 12:55                                                                          |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                    |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6000                                                                           |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.79                                                                           |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:55 |
| Color         | Clear |
| Notable odors | No    |

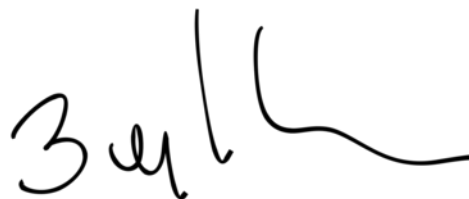
## 1,4 Dioxane, Nitrate, Phosphorus, TKN

|                      |                                       |
|----------------------|---------------------------------------|
| Constituent Sampled  | 1,4 Dioxane, Nitrate, Phosphorus, TKN |
| Number of Containers | 5                                     |

## Well Information

|                          |                                                                                 |
|--------------------------|---------------------------------------------------------------------------------|
| Well Location            | On site Plant 2                                                                 |
| Condition of Well        | Good                                                                            |
| Well Locked at Arrival   | No                                                                              |
| Well Locked at Departure | No                                                                              |
| Comments                 | Well under pressure, DTW measurements are difficult, Turbidity didn't stabilize |

Signature

A handwritten signature in black ink, appearing to be 'Zell' followed by a long, horizontal, wavy flourish.

Signed 2019-02-28 16:44:29 UTC

---

## 2019-04-08, TW-14-01, TW-14-01

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-04-08 10:47:35 EDT by Daniel Stockard |
| Updated                                                                                           | 2019-04-08 11:25:55 EDT by Christine Gregg |
| Location                                                                                          | 42.7369125, -84.58594342                   |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Daniel Stockard                            |
| Date                                                                                              | 2019-04-08                                 |
| Well Identification                                                                               | TW-14-01                                   |
| Well ID                                                                                           | TW-14-01                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Overcast, 50s                              |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 69.7          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 74            |
| Water Column                                                                                                                                                                                                                                              | 4.3           |
| Gallons in Well                                                                                                                                                                                                                                           | 0.7           |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Grab          |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 72            |
| Purge Start                                                                                                                                                                                                                                               | 10:45         |

### @10:50, DTW:69.89, pH:7.04, temp:14.3, cond:2.711, turb:315, DO:5.87, redox:106.3

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                  | 10:50                                                                             |
| Rate (mL/min)                 | 20                                                                                |
| Depth to Water (ft)           | 69.89                                                                             |
| pH                            | 7.04                                                                              |
| Conductivity (mS/cm)          | 2.711                                                                             |
| Turbidity (NTU)               | 315                                                                               |
| Dissolved Oxygen (mg/L)       | 5.87                                                                              |
| Temperature (Degrees Celsius) | 14.3                                                                              |
| Redox (ORP mV)                | 106.3                                                                             |
| parameters                    | @10:50, DTW:69.89, pH:7.04, temp:14.3, cond:2.711, turb:315, DO:5.87, redox:106.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:55, DTW:69.95, pH:7.07, temp:14.2, cond:2.722, turb:275, DO:5.98, redox:98.4

|              |       |
|--------------|-------|
| Reading Time | 10:55 |
|--------------|-------|

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 20                                                                               |
| Depth to Water (ft)              | 69.95                                                                            |
| pH                               | 7.07                                                                             |
| Conductivity (mS/cm)             | 2.722                                                                            |
| Turbidity (NTU)                  | 275                                                                              |
| Dissolved Oxygen (mg/L)          | 5.98                                                                             |
| Temperature (Degrees Celsius)    | 14.2                                                                             |
| Redox (ORP mV)                   | 98.4                                                                             |
| parameters                       | @10:55, DTW:69.95, pH:7.07, temp:14.2, cond:2.722, turb:275, DO:5.98, redox:98.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:00, DTW:70.32, pH:7.07, temp:14.2, cond:2.713, turb:209, DO:5.33, redox:86.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:00                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 20                                                                               |
| Depth to Water (ft)              | 70.32                                                                            |
| pH                               | 7.07                                                                             |
| Conductivity (mS/cm)             | 2.713                                                                            |
| Turbidity (NTU)                  | 209                                                                              |
| Dissolved Oxygen (mg/L)          | 5.33                                                                             |
| Temperature (Degrees Celsius)    | 14.2                                                                             |
| Redox (ORP mV)                   | 86.2                                                                             |
| parameters                       | @11:00, DTW:70.32, pH:7.07, temp:14.2, cond:2.713, turb:209, DO:5.33, redox:86.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:10, DTW:70.12, pH:7.06, temp:14.4, cond:2.696, turb:129, DO:4.45, redox:58.4**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 11:10                                                                            |
| Minutes Elapsed between readings | 10                                                                               |
| Rate (mL/min)                    | 20                                                                               |
| Depth to Water (ft)              | 70.12                                                                            |
| pH                               | 7.06                                                                             |
| Conductivity (mS/cm)             | 2.696                                                                            |
| Turbidity (NTU)                  | 129                                                                              |
| Dissolved Oxygen (mg/L)          | 4.45                                                                             |
| Temperature (Degrees Celsius)    | 14.4                                                                             |
| Redox (ORP mV)                   | 58.4                                                                             |
| parameters                       | @11:10, DTW:70.12, pH:7.06, temp:14.4, cond:2.696, turb:129, DO:4.45, redox:58.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:20, DTW:70.12, pH:7.16, temp:14.5, cond:2.697, turb:101, DO:5.34, redox:53.6**

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Reading Time                                                                                                                                                                                                                                                                                                                                     | 11:20                                                                            |
| Minutes Elapsed between readings                                                                                                                                                                                                                                                                                                                 | 10                                                                               |
| Rate (mL/min)                                                                                                                                                                                                                                                                                                                                    | 20                                                                               |
| Depth to Water (ft)                                                                                                                                                                                                                                                                                                                              | 70.12                                                                            |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.16                                                                             |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 2.697                                                                            |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 101                                                                              |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 5.34                                                                             |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 14.5                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 53.6                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @11:20, DTW:70.12, pH:7.16, temp:14.5, cond:2.697, turb:101, DO:5.34, redox:53.6 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                  |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 11:20                                                                            |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Gallons                                                                          |
| Total Gallons Purged                                                                                                                                                                                                                                                                                                                             | 1.5                                                                              |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 2.14                                                                             |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:20 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |                      |
|--------------------------|----------------------|
| Well Location            | 2                    |
| Well Locked at Arrival   | Yes                  |
| Well Locked at Departure | Yes                  |
| Comments                 | Sparging into zone 3 |

Signature

David  
Shank

Signed 2019-04-08 11:25:28 EDT

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## 2019-02-27, TW-14-02, TW-14-02

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-02-27 13:03:53 EST by Billy Cobern    |
| Updated                                                                                           | 2019-02-27 15:14:09 EST by Christine Gregg |
| Location                                                                                          | 42.73685932, -84.58567293                  |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-02-27                                 |
| Well Identification                                                                               | TW-14-02                                   |
| Well ID                                                                                           | TW-14-02                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cloudy 20's                                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing     |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2                 |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 68.35             |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 74.15             |
| Water Column                                                                                                                                                                                                                                              | 5.800000000000001 |
| Gallons in Well                                                                                                                                                                                                                                           | 0.94              |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                   |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow          |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder           |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow          |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 72                |
| Purge Start                                                                                                                                                                                                                                               | 13:25             |

### @13:25, DTW:68.35, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 13:25                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 68.35                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @13:25, DTW:68.35, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:30, DTW:68.35, pH:7.68, temp:9.5, cond:2.72, turb:1000, DO:11.61, redox:61.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 68.35 |
| Milliliters Purged (total)       | 500   |
| pH                               | 7.68  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 2.72                                                                             |
| Turbidity (NTU)               | 1000                                                                             |
| Dissolved Oxygen (mg/L)       | 11.61                                                                            |
| Temperature (Degrees Celsius) | 9.5                                                                              |
| Redox (ORP mV)                | 61.5                                                                             |
| parameters                    | @13:30, DTW:68.35, pH:7.68, temp:9.5, cond:2.72, turb:1000, DO:11.61, redox:61.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:35, DTW:68.35, pH:7.68, temp:9.3, cond:2.72, turb:1000, DO:11.59, redox:61.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 68.35                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 7.68                                                                             |
| Conductivity (mS/cm)             | 2.72                                                                             |
| Turbidity (NTU)                  | 1000                                                                             |
| Dissolved Oxygen (mg/L)          | 11.59                                                                            |
| Temperature (Degrees Celsius)    | 9.3                                                                              |
| Redox (ORP mV)                   | 61.6                                                                             |
| parameters                       | @13:35, DTW:68.35, pH:7.68, temp:9.3, cond:2.72, turb:1000, DO:11.59, redox:61.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:40, DTW:68.35, pH:7.67, temp:9.1, cond:2.73, turb:1000, DO:11.52, redox:61.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 13:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 68.35                                                                            |
| Milliliters Purged (total)       | 1500                                                                             |
| pH                               | 7.67                                                                             |
| Conductivity (mS/cm)             | 2.73                                                                             |
| Turbidity (NTU)                  | 1000                                                                             |
| Dissolved Oxygen (mg/L)          | 11.52                                                                            |
| Temperature (Degrees Celsius)    | 9.1                                                                              |
| Redox (ORP mV)                   | 61.7                                                                             |
| parameters                       | @13:40, DTW:68.35, pH:7.67, temp:9.1, cond:2.73, turb:1000, DO:11.52, redox:61.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:45, DTW:68.35, pH:7.67, temp:9, cond:2.73, turb:853, DO:11.5, redox:61.8**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:45 |
| Minutes Elapsed between readings | 5     |



|                               |                                                                              |
|-------------------------------|------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                          |
| Depth to Water (ft)           | 68.35                                                                        |
| Milliliters Purged (total)    | 2000                                                                         |
| pH                            | 7.67                                                                         |
| Conductivity (mS/cm)          | 2.73                                                                         |
| Turbidity (NTU)               | 853                                                                          |
| Dissolved Oxygen (mg/L)       | 11.5                                                                         |
| Temperature (Degrees Celsius) | 9                                                                            |
| Redox (ORP mV)                | 61.8                                                                         |
| parameters                    | @13:45, DTW:68.35, pH:7.67, temp:9, cond:2.73, turb:853, DO:11.5, redox:61.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:50, DTW:68.35, pH:7.67, temp:8.9, cond:2.72, turb:691, DO:11.49, redox:61.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:50                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 68.35                                                                           |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 7.67                                                                            |
| Conductivity (mS/cm)             | 2.72                                                                            |
| Turbidity (NTU)                  | 691                                                                             |
| Dissolved Oxygen (mg/L)          | 11.49                                                                           |
| Temperature (Degrees Celsius)    | 8.9                                                                             |
| Redox (ORP mV)                   | 61.9                                                                            |
| parameters                       | @13:50, DTW:68.35, pH:7.67, temp:8.9, cond:2.72, turb:691, DO:11.49, redox:61.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:55, DTW:68.35, pH:7.67, temp:8.8, cond:2.73, turb:299, DO:11.47, redox:61.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:55                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 68.35                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 7.67                                                                            |
| Conductivity (mS/cm)             | 2.73                                                                            |
| Turbidity (NTU)                  | 299                                                                             |
| Dissolved Oxygen (mg/L)          | 11.47                                                                           |
| Temperature (Degrees Celsius)    | 8.8                                                                             |
| Redox (ORP mV)                   | 61.9                                                                            |
| parameters                       | @13:55, DTW:68.35, pH:7.67, temp:8.8, cond:2.73, turb:299, DO:11.47, redox:61.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:00, DTW:68.35, pH:7.67, temp:8.8, cond:2.72, turb:123, DO:11.34, redox:61.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 68.35                                                                           |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 7.67                                                                            |
| Conductivity (mS/cm)             | 2.72                                                                            |
| Turbidity (NTU)                  | 123                                                                             |
| Dissolved Oxygen (mg/L)          | 11.34                                                                           |
| Temperature (Degrees Celsius)    | 8.8                                                                             |
| Redox (ORP mV)                   | 61.9                                                                            |
| parameters                       | @14:00, DTW:68.35, pH:7.67, temp:8.8, cond:2.72, turb:123, DO:11.34, redox:61.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:05, DTW:68.35, pH:7.66, temp:8.6, cond:2.73, turb:65.7, DO:11.4, redox:61.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:05                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 68.35                                                                           |
| Milliliters Purged (total)       | 4000                                                                            |
| pH                               | 7.66                                                                            |
| Conductivity (mS/cm)             | 2.73                                                                            |
| Turbidity (NTU)                  | 65.7                                                                            |
| Dissolved Oxygen (mg/L)          | 11.4                                                                            |
| Temperature (Degrees Celsius)    | 8.6                                                                             |
| Redox (ORP mV)                   | 61.9                                                                            |
| parameters                       | @14:05, DTW:68.35, pH:7.66, temp:8.6, cond:2.73, turb:65.7, DO:11.4, redox:61.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@14:10, DTW:68.35, pH:7.66, temp:8.6, cond:2.72, turb:279, DO:11.59, redox:62**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 68.35 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 7.66  |
| Conductivity (mS/cm)             | 2.72  |
| Turbidity (NTU)                  | 279   |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 11.59                                                                         |
| Temperature (Degrees Celsius) | 8.6                                                                           |
| Redox (ORP mV)                | 62                                                                            |
| parameters                    | @14:10, DTW:68.35, pH:7.66, temp:8.6, cond:2.72, turb:279, DO:11.59, redox:62 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:15, DTW:68.35, pH:7.66, temp:8.7, cond:2.72, turb:379, DO:11.28, redox:61.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 14:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 68.35                                                                           |
| Milliliters Purged (total)       | 5000                                                                            |
| pH                               | 7.66                                                                            |
| Conductivity (mS/cm)             | 2.72                                                                            |
| Turbidity (NTU)                  | 379                                                                             |
| Dissolved Oxygen (mg/L)          | 11.28                                                                           |
| Temperature (Degrees Celsius)    | 8.7                                                                             |
| Redox (ORP mV)                   | 61.9                                                                            |
| parameters                       | @14:15, DTW:68.35, pH:7.66, temp:8.7, cond:2.72, turb:379, DO:11.28, redox:61.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:20, DTW:68.35, pH:7.66, temp:9, cond:2.71, turb:198, DO:11.08, redox:61.9**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 14:20                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 68.35                                                                         |
| Milliliters Purged (total)       | 5500                                                                          |
| pH                               | 7.66                                                                          |
| Conductivity (mS/cm)             | 2.71                                                                          |
| Turbidity (NTU)                  | 198                                                                           |
| Dissolved Oxygen (mg/L)          | 11.08                                                                         |
| Temperature (Degrees Celsius)    | 9                                                                             |
| Redox (ORP mV)                   | 61.9                                                                          |
| parameters                       | @14:20, DTW:68.35, pH:7.66, temp:9, cond:2.71, turb:198, DO:11.08, redox:61.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@14:25, DTW:68.35, pH:7.66, temp:9.1, cond:2.71, turb:531, DO:11.32, redox:61.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 14:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 68.35 |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Milliliters Purged (total)                                                                                                                                                                                                                                                                                                                       | 6000                                                                            |
| pH                                                                                                                                                                                                                                                                                                                                               | 7.66                                                                            |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 2.71                                                                            |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 531                                                                             |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 11.32                                                                           |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 9.1                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 61.6                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @14:25, DTW:68.35, pH:7.66, temp:9.1, cond:2.71, turb:531, DO:11.32, redox:61.6 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                 |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 14:25                                                                           |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                     |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6000                                                                            |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 1.69                                                                            |

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 14:25 |
| Color         | Brown |
| Notable odors | No    |

### Nitrate, phosphorus, TKN, 1,4 Dioxane

|                      |                                       |
|----------------------|---------------------------------------|
| Constituent Sampled  | Nitrate, phosphorus, TKN, 1,4 Dioxane |
| Container Type       | 250 plastic, 40 ml voa, 125 plastic   |
| Number of Containers | 5                                     |
| Preservative         | Hcl, H2SO4, none                      |

### Well Information

|                          |                                                         |
|--------------------------|---------------------------------------------------------|
| Well Location            | On site Plant 2                                         |
| Condition of Well        | Good                                                    |
| Well Locked at Arrival   | No                                                      |
| Well Locked at Departure | No                                                      |
| Comments                 | Well under pressure, DTW measurements not real accurate |

Signature

A handwritten signature in black ink, consisting of a stylized 'Z' followed by a vertical line and a wavy horizontal line.

Signed 2019-02-27 18:12:49 UTC

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## 2019-04-08, TW-14-02, TW-14-02

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-04-08 16:00:44 EDT by Daniel Stockard |
| Updated                                                                                           | 2019-04-08 17:16:35 EDT by Christine Gregg |
| Location                                                                                          | 42.7368281, -84.58577142                   |
| Project Number                                                                                    | B0064479.2018                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Daniel Stockard                            |
| Date                                                                                              | 2019-04-08                                 |
| Well Identification                                                                               | TW-14-02                                   |
| Well ID                                                                                           | TW-14-02                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Sunny, 60s                                 |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 64.4          |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 75            |
| Water Column                                                                                                                                                                                                                                              | 10.6          |
| Gallons in Well                                                                                                                                                                                                                                           | 1.72          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Grab          |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 70            |
| Purge Start                                                                                                                                                                                                                                               | 16:00         |

### @16:05, DTW:63.9, pH:7.32, temp:16.7, cond:3.131, turb:2430, DO:9.62, redox:107

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 16:05                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 63.9                                                                            |
| pH                            | 7.32                                                                            |
| Conductivity (mS/cm)          | 3.131                                                                           |
| Turbidity (NTU)               | 2430                                                                            |
| Dissolved Oxygen (mg/L)       | 9.62                                                                            |
| Temperature (Degrees Celsius) | 16.7                                                                            |
| Redox (ORP mV)                | 107                                                                             |
| parameters                    | @16:05, DTW:63.9, pH:7.32, temp:16.7, cond:3.131, turb:2430, DO:9.62, redox:107 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @16:15, DTW:63.2, pH:7.22, temp:16.2, cond:3.189, turb:1850, DO:9.39, redox:115.2

|              |       |
|--------------|-------|
| Reading Time | 16:15 |
|--------------|-------|

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 10                                                                                |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 63.2                                                                              |
| pH                               | 7.22                                                                              |
| Conductivity (mS/cm)             | 3.189                                                                             |
| Turbidity (NTU)                  | 1850                                                                              |
| Dissolved Oxygen (mg/L)          | 9.39                                                                              |
| Temperature (Degrees Celsius)    | 16.2                                                                              |
| Redox (ORP mV)                   | 115.2                                                                             |
| parameters                       | @16:15, DTW:63.2, pH:7.22, temp:16.2, cond:3.189, turb:1850, DO:9.39, redox:115.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:30, DTW:63.7, pH:7.18, temp:16, cond:3.255, turb:1680, DO:9.13, redox:120**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 16:30                                                                         |
| Minutes Elapsed between readings | 15                                                                            |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 63.7                                                                          |
| pH                               | 7.18                                                                          |
| Conductivity (mS/cm)             | 3.255                                                                         |
| Turbidity (NTU)                  | 1680                                                                          |
| Dissolved Oxygen (mg/L)          | 9.13                                                                          |
| Temperature (Degrees Celsius)    | 16                                                                            |
| Redox (ORP mV)                   | 120                                                                           |
| parameters                       | @16:30, DTW:63.7, pH:7.18, temp:16, cond:3.255, turb:1680, DO:9.13, redox:120 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@16:35, DTW:63.7, pH:7.19, temp:16.1, cond:3.259, turb:1722, DO:9.05, redox:121.6**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 16:35                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 200                                                                               |
| Depth to Water (ft)              | 63.7                                                                              |
| pH                               | 7.19                                                                              |
| Conductivity (mS/cm)             | 3.259                                                                             |
| Turbidity (NTU)                  | 1722                                                                              |
| Dissolved Oxygen (mg/L)          | 9.05                                                                              |
| Temperature (Degrees Celsius)    | 16.1                                                                              |
| Redox (ORP mV)                   | 121.6                                                                             |
| parameters                       | @16:35, DTW:63.7, pH:7.19, temp:16.1, cond:3.259, turb:1722, DO:9.05, redox:121.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

## **Sample Information**

|               |       |
|---------------|-------|
| Sample Time   | 16:45 |
| Color         | None  |
| Notable odors | None  |

### 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

### Well Information

|                          |      |
|--------------------------|------|
| Well Location            | P2   |
| Condition of Well        | Good |
| Well Locked at Arrival   | Yes  |
| Well Locked at Departure | Yes  |

Signature

A handwritten signature in black ink, reading "Daniel Horvath". The signature is written in a cursive style with a large, looped "D" and a long, sweeping underline.

Signed 2019-04-08 17:16:33 EDT



## 2019-06-07, TW-14-02, TW-14-02

|                                                                                                   |                                              |
|---------------------------------------------------------------------------------------------------|----------------------------------------------|
| Created                                                                                           | 2019-06-07 11:24:17 EDT by Jake Pisarkiewicz |
| Updated                                                                                           | 2019-06-07 11:52:31 EDT by Christine Gregg   |
| Location                                                                                          | 42.7368483, -84.5856414                      |
| Project Number                                                                                    | B0064479.2019                                |
| Project Name / Location                                                                           | RACER Lansing, MI                            |
| Sampler Name                                                                                      | Jake Pisarkiewicz                            |
| Date                                                                                              | 2019-06-07                                   |
| Well Identification                                                                               | TW-14-02                                     |
| Well ID                                                                                           | TW-14-02                                     |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                          |
| Weather                                                                                           | Sunny, warm                                  |

### Evacuation Details

|                                                                                                                                                                                                                                                           |                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing      |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2                  |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 60.73              |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 74                 |
| Water Column                                                                                                                                                                                                                                              | 13.270000000000003 |
| Gallons in Well                                                                                                                                                                                                                                           | 2.16               |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |                    |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow           |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder            |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow           |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 70                 |
| Purge Start                                                                                                                                                                                                                                               | 11:20              |

### @11:30, DTW:73.92, pH:6.68, temp:19.8, cond:5.34, turb:0.02, DO:0.38, redox:14.2

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Reading Time                  | 11:30                                                                            |
| Rate (mL/min)                 | 200                                                                              |
| Depth to Water (ft)           | 73.92                                                                            |
| Milliliters Purged (total)    | 1000                                                                             |
| pH                            | 6.68                                                                             |
| Conductivity (mS/cm)          | 5.34                                                                             |
| Turbidity (NTU)               | 0.02                                                                             |
| Dissolved Oxygen (mg/L)       | 0.38                                                                             |
| Temperature (Degrees Celsius) | 19.8                                                                             |
| Redox (ORP mV)                | 14.2                                                                             |
| parameters                    | @11:30, DTW:73.92, pH:6.68, temp:19.8, cond:5.34, turb:0.02, DO:0.38, redox:14.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:35, DTW:73.92, pH:6.69, temp:18.5, cond:5.38, turb:0.02, DO:0.23, redox:11

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:35                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 73.92                                                                          |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 6.69                                                                           |
| Conductivity (mS/cm)             | 5.38                                                                           |
| Turbidity (NTU)                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)          | 0.23                                                                           |
| Temperature (Degrees Celsius)    | 18.5                                                                           |
| Redox (ORP mV)                   | 11                                                                             |
| parameters                       | @11:35, DTW:73.92, pH:6.69, temp:18.5, cond:5.38, turb:0.02, DO:0.23, redox:11 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:40, DTW:73.92, pH:6.69, temp:18.4, cond:5.36, turb:0.02, DO:0.18, redox:9.9**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:40                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 73.92                                                                           |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 6.69                                                                            |
| Conductivity (mS/cm)             | 5.36                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.18                                                                            |
| Temperature (Degrees Celsius)    | 18.4                                                                            |
| Redox (ORP mV)                   | 9.9                                                                             |
| parameters                       | @11:40, DTW:73.92, pH:6.69, temp:18.4, cond:5.36, turb:0.02, DO:0.18, redox:9.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:45, DTW:73.92, pH:6.68, temp:18.3, cond:5.38, turb:0.02, DO:0.12, redox:8.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:45                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 73.92                                                                           |
| Milliliters Purged (total)       | 1000                                                                            |
| pH                               | 6.68                                                                            |
| Conductivity (mS/cm)             | 5.38                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.12                                                                            |
| Temperature (Degrees Celsius)    | 18.3                                                                            |
| Redox (ORP mV)                   | 8.8                                                                             |
| parameters                       | @11:45, DTW:73.92, pH:6.68, temp:18.3, cond:5.38, turb:0.02, DO:0.12, redox:8.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:50, DTW:73.92, pH:6.68, temp:18.6, cond:5.38, turb:0.02, DO:0.11, redox:8**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 11:50                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 73.92                                                                         |
| Milliliters Purged (total)       | 1000                                                                          |
| pH                               | 6.68                                                                          |
| Conductivity (mS/cm)             | 5.38                                                                          |
| Turbidity (NTU)                  | 0.02                                                                          |
| Dissolved Oxygen (mg/L)          | 0.11                                                                          |
| Temperature (Degrees Celsius)    | 18.6                                                                          |
| Redox (ORP mV)                   | 8                                                                             |
| parameters                       | @11:50, DTW:73.92, pH:6.68, temp:18.6, cond:5.38, turb:0.02, DO:0.11, redox:8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@11:55, DTW:73.92, pH:6.68, temp:18.4, cond:5.38, turb:0.02, DO:0.1, redox:7.9**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:55                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 73.92                                                                          |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 6.68                                                                           |
| Conductivity (mS/cm)             | 5.38                                                                           |
| Turbidity (NTU)                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)          | 0.1                                                                            |
| Temperature (Degrees Celsius)    | 18.4                                                                           |
| Redox (ORP mV)                   | 7.9                                                                            |
| parameters                       | @11:55, DTW:73.92, pH:6.68, temp:18.4, cond:5.38, turb:0.02, DO:0.1, redox:7.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |             |
|-------------------------------|-------------|
| Purge End                     | 11:55       |
| Total Volume Measured (units) | Milliliters |
| Total Milliliters Purged      | 6000        |
| Well Volumes Purged           | 0.73        |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:00 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## VOCs

|                      |            |
|----------------------|------------|
| Constituent Sampled  | VOCs       |
| Container Type       | 40 mL Vial |
| Number of Containers | 3          |
| Preservative         | HCL        |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to be 'AP' followed by a stylized flourish.

Signed 2019-06-07 15:26:30 UTC

## 2019-12-05, TW-14-02

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-12-05 16:35:14 UTC by Heather Woodrum |
| Updated                                                                                           | 2019-12-05 17:15:20 UTC by Heather Woodrum |
| Location                                                                                          | 42.7368510654594, -84.5855686628116        |
| Project Number                                                                                    | 30006870                                   |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Heather Woodrum                            |
| Date                                                                                              | 2019-12-05                                 |
| Well ID                                                                                           | TW-14-02                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Cold, overcast                             |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 60.24         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 72            |
| Water Column                                                                                                                                                                                                                                                 | 11.76         |
| Gallons in Well                                                                                                                                                                                                                                              | 1.91          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 69            |
| Purge Start                                                                                                                                                                                                                                                  | 11:40         |

### @11:50, DTW:62, pH:6.86, temp:12.5, cond:3.25, turb:3.94, DO:0.65, redox:-132.4

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 11:50                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 62                                                                              |
| pH                            | 6.86                                                                            |
| Conductivity (mS/cm)          | 3.25                                                                            |
| Turbidity (NTU)               | 3.94                                                                            |
| Dissolved Oxygen (mg/L)       | 0.65                                                                            |
| Temperature (Degrees Celsius) | 12.5                                                                            |
| Redox (ORP mV)                | -132.4                                                                          |
| parameters                    | @11:50, DTW:62, pH:6.86, temp:12.5, cond:3.25, turb:3.94, DO:0.65, redox:-132.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @11:55, DTW:62, pH:6.58, temp:12.7, cond:5.06, turb:0.02, DO:0.56, redox:-158.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:55 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 62                                                                              |
| pH                            | 6.58                                                                            |
| Conductivity (mS/cm)          | 5.06                                                                            |
| Turbidity (NTU)               | 0.02                                                                            |
| Dissolved Oxygen (mg/L)       | 0.56                                                                            |
| Temperature (Degrees Celsius) | 12.7                                                                            |
| Redox (ORP mV)                | -158.9                                                                          |
| parameters                    | @11:55, DTW:62, pH:6.58, temp:12.7, cond:5.06, turb:0.02, DO:0.56, redox:-158.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:00, DTW:62, pH:6.58, temp:12.4, cond:5.13, turb:0.02, DO:0.5, redox:-162.6**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 12:00                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 62                                                                             |
| pH                               | 6.58                                                                           |
| Conductivity (mS/cm)             | 5.13                                                                           |
| Turbidity (NTU)                  | 0.02                                                                           |
| Dissolved Oxygen (mg/L)          | 0.5                                                                            |
| Temperature (Degrees Celsius)    | 12.4                                                                           |
| Redox (ORP mV)                   | -162.6                                                                         |
| parameters                       | @12:00, DTW:62, pH:6.58, temp:12.4, cond:5.13, turb:0.02, DO:0.5, redox:-162.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:05, DTW:62, pH:6.58, temp:12.7, cond:5.24, turb:0.02, DO:0.37, redox:-170**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 12:05                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 62                                                                            |
| pH                               | 6.58                                                                          |
| Conductivity (mS/cm)             | 5.24                                                                          |
| Turbidity (NTU)                  | 0.02                                                                          |
| Dissolved Oxygen (mg/L)          | 0.37                                                                          |
| Temperature (Degrees Celsius)    | 12.7                                                                          |
| Redox (ORP mV)                   | -170                                                                          |
| parameters                       | @12:05, DTW:62, pH:6.58, temp:12.7, cond:5.24, turb:0.02, DO:0.37, redox:-170 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:10, DTW:62, pH:6.57, temp:12.8, cond:5.23, turb:0.02, DO:0.36, redox:-169.9**

|              |       |
|--------------|-------|
| Reading Time | 12:10 |
|--------------|-------|

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 62                                                                              |
| pH                               | 6.57                                                                            |
| Conductivity (mS/cm)             | 5.23                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.36                                                                            |
| Temperature (Degrees Celsius)    | 12.8                                                                            |
| Redox (ORP mV)                   | -169.9                                                                          |
| parameters                       | @12:10, DTW:62, pH:6.57, temp:12.8, cond:5.23, turb:0.02, DO:0.36, redox:-169.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:15, DTW:62, pH:6.57, temp:12.8, cond:5.22, turb:0.02, DO:0.34, redox:-170.3

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 62                                                                              |
| pH                               | 6.57                                                                            |
| Conductivity (mS/cm)             | 5.22                                                                            |
| Turbidity (NTU)                  | 0.02                                                                            |
| Dissolved Oxygen (mg/L)          | 0.34                                                                            |
| Temperature (Degrees Celsius)    | 12.8                                                                            |
| Redox (ORP mV)                   | -170.3                                                                          |
| parameters                       | @12:15, DTW:62, pH:6.57, temp:12.8, cond:5.22, turb:0.02, DO:0.34, redox:-170.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|           |       |
|-----------|-------|
| Purge End | 12:15 |
|-----------|-------|

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 12:20 |
| Color         | Clear |
| Notable odors | None  |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 2 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, consisting of stylized, cursive letters that appear to be 'M' and 'P' followed by a flourish.

Signed 2019-12-05 16:54:09 UTC

---



## 2019-06-04, TW-14-06, TW-14-06

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-06-04 10:20:09 EDT by Donald Richmond |
| Updated                                                                                           | 2019-06-04 14:59:38 EDT by Christine Gregg |
| Location                                                                                          | 42.74220417, -84.58794954                  |
| Project Number                                                                                    | B0064479.2019                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Donald Richmond                            |
| Date                                                                                              | 2019-06-04                                 |
| Well Identification                                                                               | TW-14-06                                   |
| Well ID                                                                                           | TW-14-06                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | 72                                         |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 70            |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 60            |
| Purge Start                                                                                                                                                                                                                                                  | 10:25         |

### @10:35, DTW:69.9, pH:6.66, temp:17.7, cond:2.85, turb:865, DO:3.84, redox:-37.1

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Reading Time                  | 10:35                                                                           |
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 69.9                                                                            |
| pH                            | 6.66                                                                            |
| Conductivity (mS/cm)          | 2.85                                                                            |
| Turbidity (NTU)               | 865                                                                             |
| Dissolved Oxygen (mg/L)       | 3.84                                                                            |
| Temperature (Degrees Celsius) | 17.7                                                                            |
| Redox (ORP mV)                | -37.1                                                                           |
| parameters                    | @10:35, DTW:69.9, pH:6.66, temp:17.7, cond:2.85, turb:865, DO:3.84, redox:-37.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:40, DTW:69.9, pH:6.67, temp:18.5, cond:2.87, turb:933, DO:3.17, redox:-39.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:40 |
| Minutes Elapsed between readings | 4     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 69.9  |

|                               |       |
|-------------------------------|-------|
| pH                            | 6.67  |
| Conductivity (mS/cm)          | 2.87  |
| Turbidity (NTU)               | 933   |
| Dissolved Oxygen (mg/L)       | 3.17  |
| Temperature (Degrees Celsius) | 18.5  |
| Redox (ORP mV)                | -39.1 |

parameters @10:40, DTW:69.9, pH:6.67, temp:18.5, cond:2.87, turb:933, DO:3.17, redox:-39.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:45, DTW:69.9, pH:6.67, temp:17.6, cond:2.89, turb:884, DO:2.75, redox:-40.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 69.9  |
| pH                               | 6.67  |
| Conductivity (mS/cm)             | 2.89  |
| Turbidity (NTU)                  | 884   |
| Dissolved Oxygen (mg/L)          | 2.75  |
| Temperature (Degrees Celsius)    | 17.6  |
| Redox (ORP mV)                   | -40.3 |

parameters @10:45, DTW:69.9, pH:6.67, temp:17.6, cond:2.89, turb:884, DO:2.75, redox:-40.3

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:50, DTW:69.9, pH:6.67, temp:18.2, cond:2.9, turb:926, DO:3.74, redox:-41.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 200   |
| Depth to Water (ft)              | 69.9  |
| pH                               | 6.67  |
| Conductivity (mS/cm)             | 2.9   |
| Turbidity (NTU)                  | 926   |
| Dissolved Oxygen (mg/L)          | 3.74  |
| Temperature (Degrees Celsius)    | 18.2  |
| Redox (ORP mV)                   | -41.4 |

parameters @10:50, DTW:69.9, pH:6.67, temp:18.2, cond:2.9, turb:926, DO:3.74, redox:-41.4

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:55, DTW:70.7, pH:6.66, temp:18.2, cond:2.92, turb:947, DO:3.58, redox:-42.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:55 |
| Minutes Elapsed between readings | 4     |
| Rate (mL/min)                    | 200   |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Depth to Water (ft)           | 70.7                                                                            |
| pH                            | 6.66                                                                            |
| Conductivity (mS/cm)          | 2.92                                                                            |
| Turbidity (NTU)               | 947                                                                             |
| Dissolved Oxygen (mg/L)       | 3.58                                                                            |
| Temperature (Degrees Celsius) | 18.2                                                                            |
| Redox (ORP mV)                | -42.9                                                                           |
| parameters                    | @10:55, DTW:70.7, pH:6.66, temp:18.2, cond:2.92, turb:947, DO:3.58, redox:-42.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:00, DTW:70.7, pH:6.66, temp:18.7, cond:2.92, turb:993, DO:2.98, redox:-44.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 70.7                                                                            |
| pH                               | 6.66                                                                            |
| Conductivity (mS/cm)             | 2.92                                                                            |
| Turbidity (NTU)                  | 993                                                                             |
| Dissolved Oxygen (mg/L)          | 2.98                                                                            |
| Temperature (Degrees Celsius)    | 18.7                                                                            |
| Redox (ORP mV)                   | -44.4                                                                           |
| parameters                       | @11:00, DTW:70.7, pH:6.66, temp:18.7, cond:2.92, turb:993, DO:2.98, redox:-44.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:05, DTW:70.7, pH:6.69, temp:18.2, cond:2.8, turb:874, DO:3.47, redox:-34.6**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 11:05                                                                          |
| Minutes Elapsed between readings | 8                                                                              |
| Rate (mL/min)                    | 200                                                                            |
| Depth to Water (ft)              | 70.7                                                                           |
| pH                               | 6.69                                                                           |
| Conductivity (mS/cm)             | 2.8                                                                            |
| Turbidity (NTU)                  | 874                                                                            |
| Dissolved Oxygen (mg/L)          | 3.47                                                                           |
| Temperature (Degrees Celsius)    | 18.2                                                                           |
| Redox (ORP mV)                   | -34.6                                                                          |
| parameters                       | @11:05, DTW:70.7, pH:6.69, temp:18.2, cond:2.8, turb:874, DO:3.47, redox:-34.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:10, DTW:70.7, pH:6.66, temp:18.7, cond:2.93, turb:917, DO:2.86, redox:-55.2**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 11:10 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 200                                                                             |
| Depth to Water (ft)           | 70.7                                                                            |
| pH                            | 6.66                                                                            |
| Conductivity (mS/cm)          | 2.93                                                                            |
| Turbidity (NTU)               | 917                                                                             |
| Dissolved Oxygen (mg/L)       | 2.86                                                                            |
| Temperature (Degrees Celsius) | 18.7                                                                            |
| Redox (ORP mV)                | -55.2                                                                           |
| parameters                    | @11:10, DTW:70.7, pH:6.66, temp:18.7, cond:2.93, turb:917, DO:2.86, redox:-55.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:20, DTW:70.7, pH:6.67, temp:19.5, cond:2.95, turb:635, DO:2.24, redox:-66**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 11:20                                                                         |
| Minutes Elapsed between readings | 10                                                                            |
| Rate (mL/min)                    | 200                                                                           |
| Depth to Water (ft)              | 70.7                                                                          |
| pH                               | 6.67                                                                          |
| Conductivity (mS/cm)             | 2.95                                                                          |
| Turbidity (NTU)                  | 635                                                                           |
| Dissolved Oxygen (mg/L)          | 2.24                                                                          |
| Temperature (Degrees Celsius)    | 19.5                                                                          |
| Redox (ORP mV)                   | -66                                                                           |
| parameters                       | @11:20, DTW:70.7, pH:6.67, temp:19.5, cond:2.95, turb:635, DO:2.24, redox:-66 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@11:25, DTW:70.7, pH:6.67, temp:19.3, cond:2.95, turb:653, DO:2.12, redox:-69.6**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 11:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 200                                                                             |
| Depth to Water (ft)              | 70.7                                                                            |
| pH                               | 6.67                                                                            |
| Conductivity (mS/cm)             | 2.95                                                                            |
| Turbidity (NTU)                  | 653                                                                             |
| Dissolved Oxygen (mg/L)          | 2.12                                                                            |
| Temperature (Degrees Celsius)    | 19.3                                                                            |
| Redox (ORP mV)                   | -69.6                                                                           |
| parameters                       | @11:25, DTW:70.7, pH:6.67, temp:19.3, cond:2.95, turb:653, DO:2.12, redox:-69.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

|                               |         |
|-------------------------------|---------|
| Purge End                     | 11:25   |
| Total Volume Measured (units) | Gallons |

|                      |   |
|----------------------|---|
| Total Gallons Purged | 5 |
|----------------------|---|

### Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 11:25 |
| Color         | Grey  |
| Notable odors | None  |

### VOCs

|                     |      |
|---------------------|------|
| Constituent Sampled | VOCs |
|---------------------|------|

### 1,4-Dioxane

|                     |             |
|---------------------|-------------|
| Constituent Sampled | 1,4-Dioxane |
|---------------------|-------------|

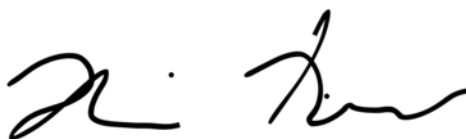
### TDS, TKN, TP, NO3, SO4

|                     |                        |
|---------------------|------------------------|
| Constituent Sampled | TDS, TKN, TP, NO3, SO4 |
|---------------------|------------------------|

### Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature



Signed 2019-06-04 15:09:25 UTC

## 2019-08-27, TW-14-06, TW-14-06

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-08-27 12:05:28 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-08-27 12:21:26 EDT by Christine Gregg |
| Location                                                                                          | 42.74216289, -84.58803822                  |
| Project Number                                                                                    | 12345678.9876                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-08-27                                 |
| Well Identification                                                                               | TW-14-06                                   |
| Well ID                                                                                           | TW-14-06                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Replicate No. (e.g. Dup)                                                                          | MSMSD                                      |
| Weather                                                                                           | Cloudy, breezy, 70's                       |

### Evacuation Details

|                                                                                                                                                                                                                                                        |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                       | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                               | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                            | 61.31         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                   | 88.65         |
| Water Column                                                                                                                                                                                                                                           | 27.34         |
| Gallons in Well                                                                                                                                                                                                                                        | 4.44          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where h= 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                           | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                 | Bladder       |
| Sample Method                                                                                                                                                                                                                                          | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                               | 86            |
| Purge Start                                                                                                                                                                                                                                            | 12:10         |

### @12:10, DTW:61.31, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 12:10                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 61.31                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @12:10, DTW:61.31, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @12:15, DTW:61.41, pH:6.84, temp:18.9, cond:3.27, turb:17.8, DO:9.05, redox:63.1

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.41 |
| Milliliters Purged (total)       | 500   |

|                               |      |
|-------------------------------|------|
| pH                            | 6.84 |
| Conductivity (mS/cm)          | 3.27 |
| Turbidity (NTU)               | 17.8 |
| Dissolved Oxygen (mg/L)       | 9.05 |
| Temperature (Degrees Celsius) | 18.9 |
| Redox (ORP mV)                | 63.1 |

parameters @12:15, DTW:61.41, pH:6.84, temp:18.9, cond:3.27, turb:17.8, DO:9.05, redox:63.1

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:20, DTW:61.41, pH:6.84, temp:18.1, cond:3.29, turb:199, DO:9.67, redox:65.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:20 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.41 |
| Milliliters Purged (total)       | 1000  |
| pH                               | 6.84  |
| Conductivity (mS/cm)             | 3.29  |
| Turbidity (NTU)                  | 199   |
| Dissolved Oxygen (mg/L)          | 9.67  |
| Temperature (Degrees Celsius)    | 18.1  |
| Redox (ORP mV)                   | 65.9  |

parameters @12:20, DTW:61.41, pH:6.84, temp:18.1, cond:3.29, turb:199, DO:9.67, redox:65.9

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:25, DTW:61.41, pH:6.83, temp:18.4, cond:3.28, turb:298, DO:8.59, redox:70.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.41 |
| Milliliters Purged (total)       | 1500  |
| pH                               | 6.83  |
| Conductivity (mS/cm)             | 3.28  |
| Turbidity (NTU)                  | 298   |
| Dissolved Oxygen (mg/L)          | 8.59  |
| Temperature (Degrees Celsius)    | 18.4  |
| Redox (ORP mV)                   | 70.4  |

parameters @12:25, DTW:61.41, pH:6.83, temp:18.4, cond:3.28, turb:298, DO:8.59, redox:70.4

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:30, DTW:61.41, pH:6.82, temp:18.3, cond:3.28, turb:471, DO:9.56, redox:66.9**

|              |       |
|--------------|-------|
| Reading Time | 12:30 |
|--------------|-------|

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 61.41                                                                           |
| Milliliters Purged (total)       | 2000                                                                            |
| pH                               | 6.82                                                                            |
| Conductivity (mS/cm)             | 3.28                                                                            |
| Turbidity (NTU)                  | 471                                                                             |
| Dissolved Oxygen (mg/L)          | 9.56                                                                            |
| Temperature (Degrees Celsius)    | 18.3                                                                            |
| Redox (ORP mV)                   | 66.9                                                                            |
| parameters                       | @12:30, DTW:61.41, pH:6.82, temp:18.3, cond:3.28, turb:471, DO:9.56, redox:66.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:35, DTW:61.41, pH:6.82, temp:18.1, cond:3.29, turb:412, DO:10.42, redox:69.2**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:35                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 61.41                                                                            |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 6.82                                                                             |
| Conductivity (mS/cm)             | 3.29                                                                             |
| Turbidity (NTU)                  | 412                                                                              |
| Dissolved Oxygen (mg/L)          | 10.42                                                                            |
| Temperature (Degrees Celsius)    | 18.1                                                                             |
| Redox (ORP mV)                   | 69.2                                                                             |
| parameters                       | @12:35, DTW:61.41, pH:6.82, temp:18.1, cond:3.29, turb:412, DO:10.42, redox:69.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@12:40, DTW:61.41, pH:6.81, temp:18.2, cond:3.11, turb:384, DO:11.16, redox:67.6**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:40                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 61.41                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 6.81                                                                             |
| Conductivity (mS/cm)             | 3.11                                                                             |
| Turbidity (NTU)                  | 384                                                                              |
| Dissolved Oxygen (mg/L)          | 11.16                                                                            |
| Temperature (Degrees Celsius)    | 18.2                                                                             |
| Redox (ORP mV)                   | 67.6                                                                             |
| parameters                       | @12:40, DTW:61.41, pH:6.81, temp:18.2, cond:3.11, turb:384, DO:11.16, redox:67.6 |



Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:45, DTW:61.41, pH:6.84, temp:18.3, cond:3.28, turb:2.96, DO:8.98, redox:67.7**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 12:45                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 61.41                                                                            |
| Milliliters Purged (total)       | 3500                                                                             |
| pH                               | 6.84                                                                             |
| Conductivity (mS/cm)             | 3.28                                                                             |
| Turbidity (NTU)                  | 2.96                                                                             |
| Dissolved Oxygen (mg/L)          | 8.98                                                                             |
| Temperature (Degrees Celsius)    | 18.3                                                                             |
| Redox (ORP mV)                   | 67.7                                                                             |
| parameters                       | @12:45, DTW:61.41, pH:6.84, temp:18.3, cond:3.28, turb:2.96, DO:8.98, redox:67.7 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:50, DTW:61.41, pH:6.85, temp:18.3, cond:3.28, turb:521, DO:9.93, redox:68.1**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 12:50                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 61.41                                                                           |
| Milliliters Purged (total)       | 4000                                                                            |
| pH                               | 6.85                                                                            |
| Conductivity (mS/cm)             | 3.28                                                                            |
| Turbidity (NTU)                  | 521                                                                             |
| Dissolved Oxygen (mg/L)          | 9.93                                                                            |
| Temperature (Degrees Celsius)    | 18.3                                                                            |
| Redox (ORP mV)                   | 68.1                                                                            |
| parameters                       | @12:50, DTW:61.41, pH:6.85, temp:18.3, cond:3.28, turb:521, DO:9.93, redox:68.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@12:55, DTW:61.41, pH:6.86, temp:18.2, cond:2.99, turb:472, DO:10.27, redox:68.3**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 12:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.41 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.86  |
| Conductivity (mS/cm)             | 2.99  |
| Turbidity (NTU)                  | 472   |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 10.27                                                                            |
| Temperature (Degrees Celsius) | 18.2                                                                             |
| Redox (ORP mV)                | 68.3                                                                             |
| parameters                    | @12:55, DTW:61.41, pH:6.86, temp:18.2, cond:2.99, turb:472, DO:10.27, redox:68.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:00, DTW:61.41, pH:6.86, temp:18.5, cond:3.28, turb:682, DO:9.31, redox:68.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 61.41                                                                           |
| Milliliters Purged (total)       | 5000                                                                            |
| pH                               | 6.86                                                                            |
| Conductivity (mS/cm)             | 3.28                                                                            |
| Turbidity (NTU)                  | 682                                                                             |
| Dissolved Oxygen (mg/L)          | 9.31                                                                            |
| Temperature (Degrees Celsius)    | 18.5                                                                            |
| Redox (ORP mV)                   | 68.5                                                                            |
| parameters                       | @13:00, DTW:61.41, pH:6.86, temp:18.5, cond:3.28, turb:682, DO:9.31, redox:68.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:05, DTW:61.41, pH:6.87, temp:18.1, cond:3.29, turb:421, DO:8.56, redox:68.6**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:05                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 61.41                                                                           |
| Milliliters Purged (total)       | 5500                                                                            |
| pH                               | 6.87                                                                            |
| Conductivity (mS/cm)             | 3.29                                                                            |
| Turbidity (NTU)                  | 421                                                                             |
| Dissolved Oxygen (mg/L)          | 8.56                                                                            |
| Temperature (Degrees Celsius)    | 18.1                                                                            |
| Redox (ORP mV)                   | 68.6                                                                            |
| parameters                       | @13:05, DTW:61.41, pH:6.87, temp:18.1, cond:3.29, turb:421, DO:8.56, redox:68.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:10, DTW:61.41, pH:6.88, temp:18.3, cond:3.29, turb:396, DO:9.16, redox:69.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:10 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 61.41 |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Milliliters Purged (total)                                                                                                                                                                                                                                                                                                                       | 6000                                                                            |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.88                                                                            |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 3.29                                                                            |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 396                                                                             |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 9.16                                                                            |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 18.3                                                                            |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 69.1                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @13:10, DTW:61.41, pH:6.88, temp:18.3, cond:3.29, turb:396, DO:9.16, redox:69.1 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                 |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 13:10                                                                           |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                     |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6000                                                                            |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.36                                                                            |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:10 |
| Color         | Tan   |
| Notable odors | No    |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 9           |
| Preservative         | HCL         |

## P, TKN

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | P, TKN         |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | H2SO4          |

## Nitrate

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | Nitrate        |
| Container Type       | 250 mL Plastic |
| Number of Containers | 2              |
| Preservative         | None           |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Photo of Well



Comments

Turbidity didn't stabilize

Signature

*3m h*

Signed 2019-08-27 16:09:29 UTC

## 2019-12-06, TW-14-06

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-06 14:01:40 UTC by Billy Cobern |
| Updated                                                                                           | 2019-12-06 14:40:22 UTC by Billy Cobern |
| Location                                                                                          | 42.7422147291179, -84.5880039409591     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-12-06                              |
| Well ID                                                                                           | TW-14-06                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Replicate No. (e.g. Dup)                                                                          | DUP-06_120619                           |
| Weather                                                                                           | Cloudy, windy, 30's                     |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 68.19         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 86.55         |
| Water Column                                                                                                                                                                                                                                              | 18.36         |
| Gallons in Well                                                                                                                                                                                                                                           | 2.98          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 84            |
| Purge Start                                                                                                                                                                                                                                               | 08:02         |

### @08:45, DTW:68.19, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 08:45                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 68.19                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @08:45, DTW:68.19, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @08:50, DTW:68.48, pH:6.75, temp:10.9, cond:3.61, turb:961, DO:8.76, redox:160.2

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 08:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 68.48 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.75  |

|                               |                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 3.61                                                                             |
| Turbidity (NTU)               | 961                                                                              |
| Dissolved Oxygen (mg/L)       | 8.76                                                                             |
| Temperature (Degrees Celsius) | 10.9                                                                             |
| Redox (ORP mV)                | 160.2                                                                            |
| parameters                    | @08:50, DTW:68.48, pH:6.75, temp:10.9, cond:3.61, turb:961, DO:8.76, redox:160.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@08:55, DTW:68.99, pH:6.75, temp:10.9, cond:3.63, turb:976, DO:8.83, redox:165.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 08:55                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 68.99                                                                            |
| Milliliters Purged (total)       | 1000                                                                             |
| pH                               | 6.75                                                                             |
| Conductivity (mS/cm)             | 3.63                                                                             |
| Turbidity (NTU)                  | 976                                                                              |
| Dissolved Oxygen (mg/L)          | 8.83                                                                             |
| Temperature (Degrees Celsius)    | 10.9                                                                             |
| Redox (ORP mV)                   | 165.5                                                                            |
| parameters                       | @08:55, DTW:68.99, pH:6.75, temp:10.9, cond:3.63, turb:976, DO:8.83, redox:165.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:00, DTW:69.48, pH:6.76, temp:8.7, cond:3.65, turb:916, DO:9.29, redox:170.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:00                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 69.48                                                                           |
| Milliliters Purged (total)       | 1500                                                                            |
| pH                               | 6.76                                                                            |
| Conductivity (mS/cm)             | 3.65                                                                            |
| Turbidity (NTU)                  | 916                                                                             |
| Dissolved Oxygen (mg/L)          | 9.29                                                                            |
| Temperature (Degrees Celsius)    | 8.7                                                                             |
| Redox (ORP mV)                   | 170.8                                                                           |
| parameters                       | @09:00, DTW:69.48, pH:6.76, temp:8.7, cond:3.65, turb:916, DO:9.29, redox:170.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:05, DTW:69.92, pH:6.77, temp:8.7, cond:3.64, turb:854, DO:9.13, redox:174.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:05 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                             |
| Depth to Water (ft)           | 69.92                                                                           |
| Milliliters Purged (total)    | 2000                                                                            |
| pH                            | 6.77                                                                            |
| Conductivity (mS/cm)          | 3.64                                                                            |
| Turbidity (NTU)               | 854                                                                             |
| Dissolved Oxygen (mg/L)       | 9.13                                                                            |
| Temperature (Degrees Celsius) | 8.7                                                                             |
| Redox (ORP mV)                | 174.1                                                                           |
| parameters                    | @09:05, DTW:69.92, pH:6.77, temp:8.7, cond:3.64, turb:854, DO:9.13, redox:174.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:10, DTW:70.22, pH:6.78, temp:8.1, cond:3.65, turb:803, DO:9.39, redox:177.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:10                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 70.22                                                                           |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 6.78                                                                            |
| Conductivity (mS/cm)             | 3.65                                                                            |
| Turbidity (NTU)                  | 803                                                                             |
| Dissolved Oxygen (mg/L)          | 9.39                                                                            |
| Temperature (Degrees Celsius)    | 8.1                                                                             |
| Redox (ORP mV)                   | 177.2                                                                           |
| parameters                       | @09:10, DTW:70.22, pH:6.78, temp:8.1, cond:3.65, turb:803, DO:9.39, redox:177.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:15, DTW:70.36, pH:6.79, temp:8.1, cond:3.64, turb:758, DO:9.18, redox:178.5**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 09:15                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 70.36                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 6.79                                                                            |
| Conductivity (mS/cm)             | 3.64                                                                            |
| Turbidity (NTU)                  | 758                                                                             |
| Dissolved Oxygen (mg/L)          | 9.18                                                                            |
| Temperature (Degrees Celsius)    | 8.1                                                                             |
| Redox (ORP mV)                   | 178.5                                                                           |
| parameters                       | @09:15, DTW:70.36, pH:6.79, temp:8.1, cond:3.64, turb:758, DO:9.18, redox:178.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:20, DTW:70.47, pH:6.8, temp:9.4, cond:3.64, turb:826, DO:9.03, redox:182.2**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 09:20                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 70.47                                                                          |
| Milliliters Purged (total)       | 3500                                                                           |
| pH                               | 6.8                                                                            |
| Conductivity (mS/cm)             | 3.64                                                                           |
| Turbidity (NTU)                  | 826                                                                            |
| Dissolved Oxygen (mg/L)          | 9.03                                                                           |
| Temperature (Degrees Celsius)    | 9.4                                                                            |
| Redox (ORP mV)                   | 182.2                                                                          |
| parameters                       | @09:20, DTW:70.47, pH:6.8, temp:9.4, cond:3.64, turb:826, DO:9.03, redox:182.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:25, DTW:70.47, pH:6.8, temp:9.4, cond:3.65, turb:969, DO:8.91, redox:182.5**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 09:25                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 70.47                                                                          |
| Milliliters Purged (total)       | 4000                                                                           |
| pH                               | 6.8                                                                            |
| Conductivity (mS/cm)             | 3.65                                                                           |
| Turbidity (NTU)                  | 969                                                                            |
| Dissolved Oxygen (mg/L)          | 8.91                                                                           |
| Temperature (Degrees Celsius)    | 9.4                                                                            |
| Redox (ORP mV)                   | 182.5                                                                          |
| parameters                       | @09:25, DTW:70.47, pH:6.8, temp:9.4, cond:3.65, turb:969, DO:8.91, redox:182.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@09:30, DTW:70.58, pH:6.8, temp:9.4, cond:3.65, turb:796, DO:8.93, redox:182.9**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:30 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 70.58 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.8   |
| Conductivity (mS/cm)             | 3.65  |
| Turbidity (NTU)                  | 796   |



|                               |                                                                                |
|-------------------------------|--------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)       | 8.93                                                                           |
| Temperature (Degrees Celsius) | 9.4                                                                            |
| Redox (ORP mV)                | 182.9                                                                          |
| parameters                    | @09:30, DTW:70.58, pH:6.8, temp:9.4, cond:3.65, turb:796, DO:8.93, redox:182.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@09:35, DTW:70.63, pH:6.8, temp:9.3, cond:3.65, turb:864, DO:8.93, redox:183.1**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 09:35                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 70.63                                                                          |
| Milliliters Purged (total)       | 5000                                                                           |
| pH                               | 6.8                                                                            |
| Conductivity (mS/cm)             | 3.65                                                                           |
| Turbidity (NTU)                  | 864                                                                            |
| Dissolved Oxygen (mg/L)          | 8.93                                                                           |
| Temperature (Degrees Celsius)    | 9.3                                                                            |
| Redox (ORP mV)                   | 183.1                                                                          |
| parameters                       | @09:35, DTW:70.63, pH:6.8, temp:9.3, cond:3.65, turb:864, DO:8.93, redox:183.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@09:40, DTW:70.63, pH:6.8, temp:9.3, cond:3.64, turb:937, DO:8.94, redox:183.2**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 09:40                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 70.63                                                                          |
| Milliliters Purged (total)       | 5500                                                                           |
| pH                               | 6.8                                                                            |
| Conductivity (mS/cm)             | 3.64                                                                           |
| Turbidity (NTU)                  | 937                                                                            |
| Dissolved Oxygen (mg/L)          | 8.94                                                                           |
| Temperature (Degrees Celsius)    | 9.3                                                                            |
| Redox (ORP mV)                   | 183.2                                                                          |
| parameters                       | @09:40, DTW:70.63, pH:6.8, temp:9.3, cond:3.64, turb:937, DO:8.94, redox:183.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

#### **@09:45, DTW:70.71, pH:6.8, temp:9.3, cond:3.65, turb:967, DO:8.92, redox:183.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 70.71 |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Milliliters Purged (total)                                                                                                                                                                                                                                                                                                                       | 6000                                                                           |
| pH                                                                                                                                                                                                                                                                                                                                               | 6.8                                                                            |
| Conductivity (mS/cm)                                                                                                                                                                                                                                                                                                                             | 3.65                                                                           |
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 967                                                                            |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 8.92                                                                           |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 9.3                                                                            |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 183.4                                                                          |
| parameters                                                                                                                                                                                                                                                                                                                                       | @09:45, DTW:70.71, pH:6.8, temp:9.3, cond:3.65, turb:967, DO:8.92, redox:183.4 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 09:45                                                                          |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                    |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6000                                                                           |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.53                                                                           |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 09:45 |
| Color         | Tan   |
| Notable odors | No    |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 6           |
| Preservative         | HCL         |

## Nitrate E 300.0

|                      |                 |
|----------------------|-----------------|
| Constituent Sampled  | Nitrate E 300.0 |
| Container Type       | 125 mL Plastic  |
| Number of Containers | 1               |
| Preservative         | None            |

## TKN/Total P

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | TKN/Total P    |
| Container Type       | 250 mL Plastic |
| Number of Containers | 1              |
| Preservative         | H2SO4          |

## Well Information

|                          |                            |
|--------------------------|----------------------------|
| Well Location            | Plant 3                    |
| Condition of Well        | Good                       |
| Well Locked at Arrival   | Yes                        |
| Well Locked at Departure | Yes                        |
| Comments                 | Turbidity didn't stabilize |

Signature

A handwritten signature in black ink, consisting of the numbers '346' followed by a stylized flourish.

Signed 2019-12-06 14:05:43 UTC

---

## 2019-08-28, TW-15-11, TW-15-11

|                                                                                                   |                                            |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|
| Created                                                                                           | 2019-08-28 09:40:56 EDT by Billy Cobern    |
| Updated                                                                                           | 2019-08-28 10:20:26 EDT by Christine Gregg |
| Location                                                                                          | 42.74208783, -84.58809044                  |
| Project Number                                                                                    | 30006870.1234                              |
| Project Name / Location                                                                           | RACER Lansing, MI                          |
| Sampler Name                                                                                      | Billy Cobern                               |
| Date                                                                                              | 2019-08-28                                 |
| Well Identification                                                                               | TW-15-11                                   |
| Well ID                                                                                           | TW-15-11                                   |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                        |
| Weather                                                                                           | Partly Cloudy, Breezy, 60's                |

### Evacuation Details

|                                                                                                                                                                                                                                                           |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                          | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                  | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                               | 67.65         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                      | 86.85         |
| Water Column                                                                                                                                                                                                                                              | 19.2          |
| Gallons in Well                                                                                                                                                                                                                                           | 3.12          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h$ = 1foot] Well radius (inch):Volume (Gal./foot):Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                              | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                    | Bladder       |
| Sample Method                                                                                                                                                                                                                                             | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                  | 84            |
| Purge Start                                                                                                                                                                                                                                               | 09:40         |

### @09:40, DTW:67.65, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 09:40                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 67.65                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @09:40, DTW:67.65, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @09:45, DTW:67.85, pH:6.37, temp:18.3, cond:3.29, turb:35.1, DO:4.39, redox:212.5

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 09:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 67.85 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.37  |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Conductivity (mS/cm)          | 3.29                                                                              |
| Turbidity (NTU)               | 35.1                                                                              |
| Dissolved Oxygen (mg/L)       | 4.39                                                                              |
| Temperature (Degrees Celsius) | 18.3                                                                              |
| Redox (ORP mV)                | 212.5                                                                             |
| parameters                    | @09:45, DTW:67.85, pH:6.37, temp:18.3, cond:3.29, turb:35.1, DO:4.39, redox:212.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:50, DTW:67.85, pH:6.38, temp:18.5, cond:3.28, turb:26.3, DO:4.25, redox:210.2**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:50                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 67.85                                                                             |
| Milliliters Purged (total)       | 1000                                                                              |
| pH                               | 6.38                                                                              |
| Conductivity (mS/cm)             | 3.28                                                                              |
| Turbidity (NTU)                  | 26.3                                                                              |
| Dissolved Oxygen (mg/L)          | 4.25                                                                              |
| Temperature (Degrees Celsius)    | 18.5                                                                              |
| Redox (ORP mV)                   | 210.2                                                                             |
| parameters                       | @09:50, DTW:67.85, pH:6.38, temp:18.5, cond:3.28, turb:26.3, DO:4.25, redox:210.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@09:55, DTW:67.85, pH:6.38, temp:18.7, cond:3.27, turb:24.1, DO:4.14, redox:209.6**

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 09:55                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 67.85                                                                             |
| Milliliters Purged (total)       | 1500                                                                              |
| pH                               | 6.38                                                                              |
| Conductivity (mS/cm)             | 3.27                                                                              |
| Turbidity (NTU)                  | 24.1                                                                              |
| Dissolved Oxygen (mg/L)          | 4.14                                                                              |
| Temperature (Degrees Celsius)    | 18.7                                                                              |
| Redox (ORP mV)                   | 209.6                                                                             |
| parameters                       | @09:55, DTW:67.85, pH:6.38, temp:18.7, cond:3.27, turb:24.1, DO:4.14, redox:209.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:00, DTW:67.85, pH:6.39, temp:18.9, cond:3.27, turb:17.4, DO:4.09, redox:209.1**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:00 |
| Minutes Elapsed between readings | 5     |

|                               |                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------|
| Rate (mL/min)                 | 100                                                                               |
| Depth to Water (ft)           | 67.85                                                                             |
| Milliliters Purged (total)    | 2000                                                                              |
| pH                            | 6.39                                                                              |
| Conductivity (mS/cm)          | 3.27                                                                              |
| Turbidity (NTU)               | 17.4                                                                              |
| Dissolved Oxygen (mg/L)       | 4.09                                                                              |
| Temperature (Degrees Celsius) | 18.9                                                                              |
| Redox (ORP mV)                | 209.1                                                                             |
| parameters                    | @10:00, DTW:67.85, pH:6.39, temp:18.9, cond:3.27, turb:17.4, DO:4.09, redox:209.1 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:05, DTW:67.85, pH:6.4, temp:19.2, cond:3.25, turb:14.7, DO:4.08, redox:208.3**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:05                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 67.85                                                                            |
| Milliliters Purged (total)       | 2500                                                                             |
| pH                               | 6.4                                                                              |
| Conductivity (mS/cm)             | 3.25                                                                             |
| Turbidity (NTU)                  | 14.7                                                                             |
| Dissolved Oxygen (mg/L)          | 4.08                                                                             |
| Temperature (Degrees Celsius)    | 19.2                                                                             |
| Redox (ORP mV)                   | 208.3                                                                            |
| parameters                       | @10:05, DTW:67.85, pH:6.4, temp:19.2, cond:3.25, turb:14.7, DO:4.08, redox:208.3 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@10:10, DTW:67.85, pH:6.4, temp:19.3, cond:3.26, turb:11.7, DO:4.16, redox:207.5**

|                                  |                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------|
| Reading Time                     | 10:10                                                                            |
| Minutes Elapsed between readings | 5                                                                                |
| Rate (mL/min)                    | 100                                                                              |
| Depth to Water (ft)              | 67.85                                                                            |
| Milliliters Purged (total)       | 3000                                                                             |
| pH                               | 6.4                                                                              |
| Conductivity (mS/cm)             | 3.26                                                                             |
| Turbidity (NTU)                  | 11.7                                                                             |
| Dissolved Oxygen (mg/L)          | 4.16                                                                             |
| Temperature (Degrees Celsius)    | 19.3                                                                             |
| Redox (ORP mV)                   | 207.5                                                                            |
| parameters                       | @10:10, DTW:67.85, pH:6.4, temp:19.3, cond:3.26, turb:11.7, DO:4.16, redox:207.5 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:15, DTW:67.85, pH:6.41, temp:19.5, cond:3.27, turb:9.73, DO:4.29, redox:206.6

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:15                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 67.85                                                                             |
| Milliliters Purged (total)       | 3500                                                                              |
| pH                               | 6.41                                                                              |
| Conductivity (mS/cm)             | 3.27                                                                              |
| Turbidity (NTU)                  | 9.73                                                                              |
| Dissolved Oxygen (mg/L)          | 4.29                                                                              |
| Temperature (Degrees Celsius)    | 19.5                                                                              |
| Redox (ORP mV)                   | 206.6                                                                             |
| parameters                       | @10:15, DTW:67.85, pH:6.41, temp:19.5, cond:3.27, turb:9.73, DO:4.29, redox:206.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:20, DTW:67.85, pH:6.42, temp:19.7, cond:3.27, turb:9.32, DO:4.24, redox:205.8

|                                  |                                                                                   |
|----------------------------------|-----------------------------------------------------------------------------------|
| Reading Time                     | 10:20                                                                             |
| Minutes Elapsed between readings | 5                                                                                 |
| Rate (mL/min)                    | 100                                                                               |
| Depth to Water (ft)              | 67.85                                                                             |
| Milliliters Purged (total)       | 4000                                                                              |
| pH                               | 6.42                                                                              |
| Conductivity (mS/cm)             | 3.27                                                                              |
| Turbidity (NTU)                  | 9.32                                                                              |
| Dissolved Oxygen (mg/L)          | 4.24                                                                              |
| Temperature (Degrees Celsius)    | 19.7                                                                              |
| Redox (ORP mV)                   | 205.8                                                                             |
| parameters                       | @10:20, DTW:67.85, pH:6.42, temp:19.7, cond:3.27, turb:9.32, DO:4.24, redox:205.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @10:25, DTW:67.85, pH:6.43, temp:19.6, cond:3.27, turb:9.03, DO:4.22, redox:205.2

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 10:25 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 67.85 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.43  |
| Conductivity (mS/cm)             | 3.27  |
| Turbidity (NTU)                  | 9.03  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 4.22                                                                              |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 19.6                                                                              |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 205.2                                                                             |
| parameters                                                                                                                                                                                                                                                                                                                                       | @10:25, DTW:67.85, pH:6.43, temp:19.6, cond:3.27, turb:9.03, DO:4.22, redox:205.2 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                   |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 10:25                                                                             |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                       |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 4500                                                                              |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.38                                                                              |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 10:25 |
| Color         | Clear |
| Notable odors | No    |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## P, TKN

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | P, TKN         |
| Container Type       | 250 mL Plastic |
| Number of Containers | 1              |
| Preservative         | H2SO4          |

## Nitrate

|                      |                |
|----------------------|----------------|
| Constituent Sampled  | Nitrate        |
| Container Type       | 250 mL Plastic |
| Number of Containers | 1              |
| Preservative         | None           |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |



Photo of Well



---

Signature

3m/L

Signed 2019-08-28 13:44:22 UTC

---

## 2019-12-05, TW-15-11

|                                                                                                   |                                         |
|---------------------------------------------------------------------------------------------------|-----------------------------------------|
| Created                                                                                           | 2019-12-05 17:48:09 UTC by Billy Cobern |
| Updated                                                                                           | 2019-12-05 18:47:00 UTC by Billy Cobern |
| Location                                                                                          | 42.7421350172188, -84.5881228801651     |
| Project Number                                                                                    | 30006870                                |
| Project Name / Location                                                                           | RACER Lansing, MI                       |
| Sampler Name                                                                                      | Billy Cobern                            |
| Date                                                                                              | 2019-12-05                              |
| Well ID                                                                                           | TW-15-11                                |
| Are you able to purge and/or sample this well? If not, explain why in the Comments section below. | Yes                                     |
| Weather                                                                                           | Cloudy 30's                             |

### Evacuation Details

|                                                                                                                                                                                                                                                              |               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Measuring Point (mp) Description                                                                                                                                                                                                                             | Top of Casing |
| Casing Diameter (inches)                                                                                                                                                                                                                                     | 2             |
| Static Water Level (ft-bmp)                                                                                                                                                                                                                                  | 66.55         |
| Total Depth (ft-bmp)                                                                                                                                                                                                                                         | 86.9          |
| Water Column                                                                                                                                                                                                                                                 | 20.35         |
| Gallons in Well                                                                                                                                                                                                                                              | 3.31          |
| Reference Note: Well Volume Calculation [ $\pi r^2 h$ , where $h = 1$ foot] Well radius (inch): Volume (Gal./foot): Volume (mL/foot) 0.5" = 0.04 gal/ft = 154 mL/ft 1" = 0.16 gal/ft = 617 mL/ft 2" = 0.65 gal/ft = 2470 mL/ft 3" = 1.47 gal/ft = 5557 mL/ft |               |
| Purge Method                                                                                                                                                                                                                                                 | Low-Flow      |
| Type of Equipment used                                                                                                                                                                                                                                       | Bladder       |
| Sample Method                                                                                                                                                                                                                                                | Low-Flow      |
| Sample Depth (ft-bmp) (e.g. pump intake)                                                                                                                                                                                                                     | 84.5          |
| Purge Start                                                                                                                                                                                                                                                  | 12:45         |

### @12:55, DTW:66.55, pH:, temp:, cond:, turb:, DO:, redox:

|                            |                                                          |
|----------------------------|----------------------------------------------------------|
| Reading Time               | 12:55                                                    |
| Rate (mL/min)              | 100                                                      |
| Depth to Water (ft)        | 66.55                                                    |
| Milliliters Purged (total) | 0                                                        |
| parameters                 | @12:55, DTW:66.55, pH:, temp:, cond:, turb:, DO:, redox: |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% -ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### @13:00, DTW:66.65, pH:6.62, temp:9.3, cond:3.18, turb:73.1, DO:4.81, redox:22.9

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:00 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 66.65 |
| Milliliters Purged (total)       | 500   |
| pH                               | 6.62  |
| Conductivity (mS/cm)             | 3.18  |

|                               |                                                                                 |
|-------------------------------|---------------------------------------------------------------------------------|
| Turbidity (NTU)               | 73.1                                                                            |
| Dissolved Oxygen (mg/L)       | 4.81                                                                            |
| Temperature (Degrees Celsius) | 9.3                                                                             |
| Redox (ORP mV)                | 22.9                                                                            |
| parameters                    | @13:00, DTW:66.65, pH:6.62, temp:9.3, cond:3.18, turb:73.1, DO:4.81, redox:22.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:05, DTW:66.75, pH:6.6, temp:9.1, cond:3.23, turb:69.6, DO:4.46, redox:23.9**

|                                  |                                                                                |
|----------------------------------|--------------------------------------------------------------------------------|
| Reading Time                     | 13:05                                                                          |
| Minutes Elapsed between readings | 5                                                                              |
| Rate (mL/min)                    | 100                                                                            |
| Depth to Water (ft)              | 66.75                                                                          |
| Milliliters Purged (total)       | 1000                                                                           |
| pH                               | 6.6                                                                            |
| Conductivity (mS/cm)             | 3.23                                                                           |
| Turbidity (NTU)                  | 69.6                                                                           |
| Dissolved Oxygen (mg/L)          | 4.46                                                                           |
| Temperature (Degrees Celsius)    | 9.1                                                                            |
| Redox (ORP mV)                   | 23.9                                                                           |
| parameters                       | @13:05, DTW:66.75, pH:6.6, temp:9.1, cond:3.23, turb:69.6, DO:4.46, redox:23.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:10, DTW:66.81, pH:6.59, temp:9, cond:3.24, turb:61.2, DO:4.02, redox:24.9**

|                                  |                                                                               |
|----------------------------------|-------------------------------------------------------------------------------|
| Reading Time                     | 13:10                                                                         |
| Minutes Elapsed between readings | 5                                                                             |
| Rate (mL/min)                    | 100                                                                           |
| Depth to Water (ft)              | 66.81                                                                         |
| Milliliters Purged (total)       | 1500                                                                          |
| pH                               | 6.59                                                                          |
| Conductivity (mS/cm)             | 3.24                                                                          |
| Turbidity (NTU)                  | 61.2                                                                          |
| Dissolved Oxygen (mg/L)          | 4.02                                                                          |
| Temperature (Degrees Celsius)    | 9                                                                             |
| Redox (ORP mV)                   | 24.9                                                                          |
| parameters                       | @13:10, DTW:66.81, pH:6.59, temp:9, cond:3.24, turb:61.2, DO:4.02, redox:24.9 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:15, DTW:66.81, pH:6.59, temp:9, cond:3.25, turb:51.2, DO:3.76, redox:25.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:15 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |

|                               |                                                                               |
|-------------------------------|-------------------------------------------------------------------------------|
| Depth to Water (ft)           | 66.81                                                                         |
| Milliliters Purged (total)    | 2000                                                                          |
| pH                            | 6.59                                                                          |
| Conductivity (mS/cm)          | 3.25                                                                          |
| Turbidity (NTU)               | 51.2                                                                          |
| Dissolved Oxygen (mg/L)       | 3.76                                                                          |
| Temperature (Degrees Celsius) | 9                                                                             |
| Redox (ORP mV)                | 25.4                                                                          |
| parameters                    | @13:15, DTW:66.81, pH:6.59, temp:9, cond:3.25, turb:51.2, DO:3.76, redox:25.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:20, DTW:66.81, pH:6.58, temp:9.1, cond:3.24, turb:41.4, DO:3.48, redox:25.8**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:20                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 66.81                                                                           |
| Milliliters Purged (total)       | 2500                                                                            |
| pH                               | 6.58                                                                            |
| Conductivity (mS/cm)             | 3.24                                                                            |
| Turbidity (NTU)                  | 41.4                                                                            |
| Dissolved Oxygen (mg/L)          | 3.48                                                                            |
| Temperature (Degrees Celsius)    | 9.1                                                                             |
| Redox (ORP mV)                   | 25.8                                                                            |
| parameters                       | @13:20, DTW:66.81, pH:6.58, temp:9.1, cond:3.24, turb:41.4, DO:3.48, redox:25.8 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

### **@13:25, DTW:66.88, pH:6.58, temp:9.2, cond:3.24, turb:32.8, DO:3.28, redox:26.2**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:25                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 66.88                                                                           |
| Milliliters Purged (total)       | 3000                                                                            |
| pH                               | 6.58                                                                            |
| Conductivity (mS/cm)             | 3.24                                                                            |
| Turbidity (NTU)                  | 32.8                                                                            |
| Dissolved Oxygen (mg/L)          | 3.28                                                                            |
| Temperature (Degrees Celsius)    | 9.2                                                                             |
| Redox (ORP mV)                   | 26.2                                                                            |
| parameters                       | @13:25, DTW:66.88, pH:6.58, temp:9.2, cond:3.24, turb:32.8, DO:3.28, redox:26.2 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:30, DTW:66.88, pH:6.57, temp:9.2, cond:3.25, turb:24.1, DO:3.19, redox:26.4**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:30                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 66.88                                                                           |
| Milliliters Purged (total)       | 3500                                                                            |
| pH                               | 6.57                                                                            |
| Conductivity (mS/cm)             | 3.25                                                                            |
| Turbidity (NTU)                  | 24.1                                                                            |
| Dissolved Oxygen (mg/L)          | 3.19                                                                            |
| Temperature (Degrees Celsius)    | 9.2                                                                             |
| Redox (ORP mV)                   | 26.4                                                                            |
| parameters                       | @13:30, DTW:66.88, pH:6.57, temp:9.2, cond:3.25, turb:24.1, DO:3.19, redox:26.4 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:35, DTW:66.88, pH:6.57, temp:9.2, cond:3.26, turb:17.5, DO:3.09, redox:26.6**

|                                  |                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------|
| Reading Time                     | 13:35                                                                           |
| Minutes Elapsed between readings | 5                                                                               |
| Rate (mL/min)                    | 100                                                                             |
| Depth to Water (ft)              | 66.88                                                                           |
| Milliliters Purged (total)       | 4000                                                                            |
| pH                               | 6.57                                                                            |
| Conductivity (mS/cm)             | 3.26                                                                            |
| Turbidity (NTU)                  | 17.5                                                                            |
| Dissolved Oxygen (mg/L)          | 3.09                                                                            |
| Temperature (Degrees Celsius)    | 9.2                                                                             |
| Redox (ORP mV)                   | 26.6                                                                            |
| parameters                       | @13:35, DTW:66.88, pH:6.57, temp:9.2, cond:3.26, turb:17.5, DO:3.09, redox:26.6 |

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:40, DTW:66.88, pH:6.57, temp:9.2, cond:3.26, turb:13.2, DO:2.96, redox:26.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:40 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 66.88 |
| Milliliters Purged (total)       | 4500  |
| pH                               | 6.57  |
| Conductivity (mS/cm)             | 3.26  |
| Turbidity (NTU)                  | 13.2  |
| Dissolved Oxygen (mg/L)          | 2.96  |
| Temperature (Degrees Celsius)    | 9.2   |
| Redox (ORP mV)                   | 26.7  |

parameters

@13:40, DTW:66.88, pH:6.57, temp:9.2, cond:3.26, turb:13.2, DO:2.96, redox:26.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:45, DTW:66.88, pH:6.57, temp:9.4, cond:3.24, turb:9.72, DO:2.86, redox:26.7**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:45 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 66.88 |
| Milliliters Purged (total)       | 5000  |
| pH                               | 6.57  |
| Conductivity (mS/cm)             | 3.24  |
| Turbidity (NTU)                  | 9.72  |
| Dissolved Oxygen (mg/L)          | 2.86  |
| Temperature (Degrees Celsius)    | 9.4   |
| Redox (ORP mV)                   | 26.7  |

parameters

@13:45, DTW:66.88, pH:6.57, temp:9.4, cond:3.24, turb:9.72, DO:2.86, redox:26.7

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:50, DTW:66.88, pH:6.57, temp:9.5, cond:3.25, turb:9.23, DO:2.81, redox:26.6**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:50 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 66.88 |
| Milliliters Purged (total)       | 5500  |
| pH                               | 6.57  |
| Conductivity (mS/cm)             | 3.25  |
| Turbidity (NTU)                  | 9.23  |
| Dissolved Oxygen (mg/L)          | 2.81  |
| Temperature (Degrees Celsius)    | 9.5   |
| Redox (ORP mV)                   | 26.6  |

parameters

@13:50, DTW:66.88, pH:6.57, temp:9.5, cond:3.25, turb:9.23, DO:2.81, redox:26.6

Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit

**@13:55, DTW:66.88, pH:6.56, temp:9.7, cond:3.24, turb:9.34, DO:2.78, redox:26.4**

|                                  |       |
|----------------------------------|-------|
| Reading Time                     | 13:55 |
| Minutes Elapsed between readings | 5     |
| Rate (mL/min)                    | 100   |
| Depth to Water (ft)              | 66.88 |
| Milliliters Purged (total)       | 6000  |
| pH                               | 6.56  |
| Conductivity (mS/cm)             | 3.24  |

|                                                                                                                                                                                                                                                                                                                                                  |                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Turbidity (NTU)                                                                                                                                                                                                                                                                                                                                  | 9.34                                                                            |
| Dissolved Oxygen (mg/L)                                                                                                                                                                                                                                                                                                                          | 2.78                                                                            |
| Temperature (Degrees Celsius)                                                                                                                                                                                                                                                                                                                    | 9.7                                                                             |
| Redox (ORP mV)                                                                                                                                                                                                                                                                                                                                   | 26.4                                                                            |
| parameters                                                                                                                                                                                                                                                                                                                                       | @13:55, DTW:66.88, pH:6.56, temp:9.7, cond:3.24, turb:9.34, DO:2.78, redox:26.4 |
| Well is considered stabilized and ready for sample collection when the following is met for three consecutive readings collected at 3 to 5 minute intervals: -Turbidity remains within 10% (or within 1 NTU if turbidity is <10NTU) -Specific conductance and temp remain within 3% - ORP within + or - 10 mV -DO within 10% -pH within 0.1 unit |                                                                                 |
| Purge End                                                                                                                                                                                                                                                                                                                                        | 13:55                                                                           |
| Total Volume Measured (units)                                                                                                                                                                                                                                                                                                                    | Milliliters                                                                     |
| Total Milliliters Purged                                                                                                                                                                                                                                                                                                                         | 6000                                                                            |
| Well Volumes Purged                                                                                                                                                                                                                                                                                                                              | 0.48                                                                            |

## Sample Information

|               |       |
|---------------|-------|
| Sample Time   | 13:55 |
| Color         | Clear |
| Notable odors | No    |

## 1,4-Dioxane

|                      |             |
|----------------------|-------------|
| Constituent Sampled  | 1,4-Dioxane |
| Container Type       | 40 mL Vial  |
| Number of Containers | 3           |
| Preservative         | HCL         |

## Well Information

|                          |         |
|--------------------------|---------|
| Well Location            | Plant 3 |
| Condition of Well        | Good    |
| Well Locked at Arrival   | Yes     |
| Well Locked at Departure | Yes     |

Signature

A handwritten signature in black ink, appearing to be 'Zur/L' or similar, written in a cursive style.

Signed 2019-12-05 17:50:07 UTC

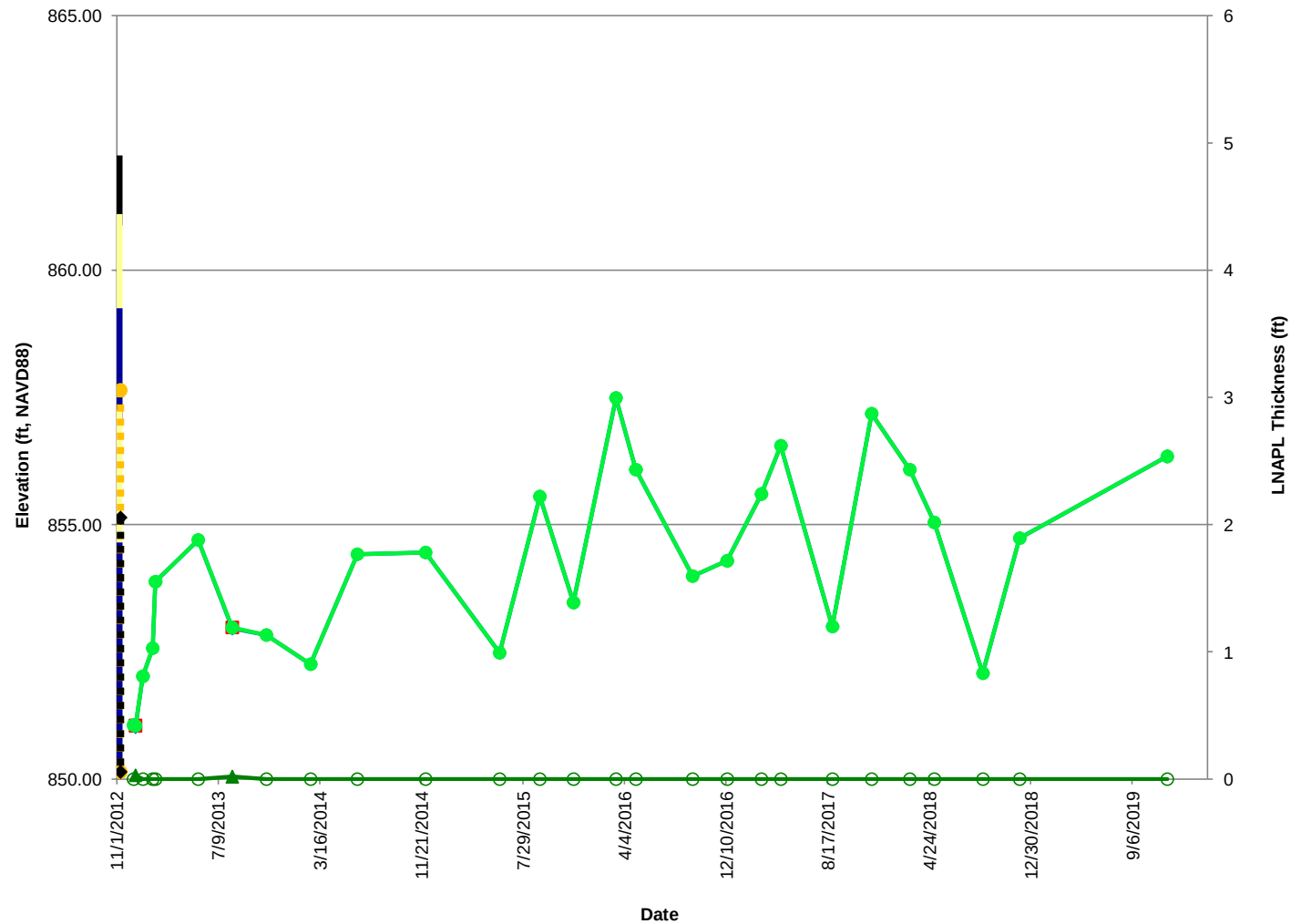
---



# APPENDIX D

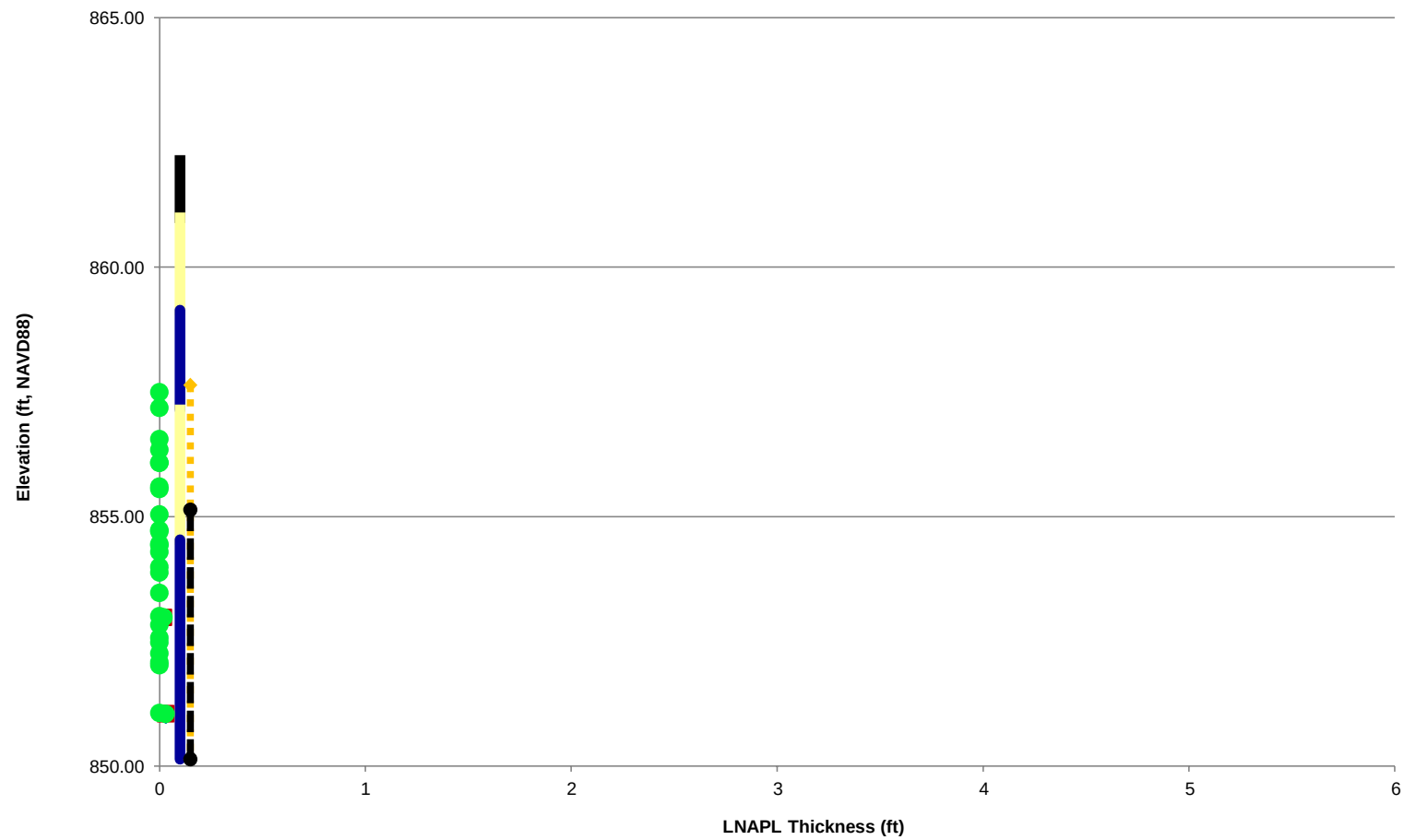
LNAPL Trend Graphs  
(On attached CD)





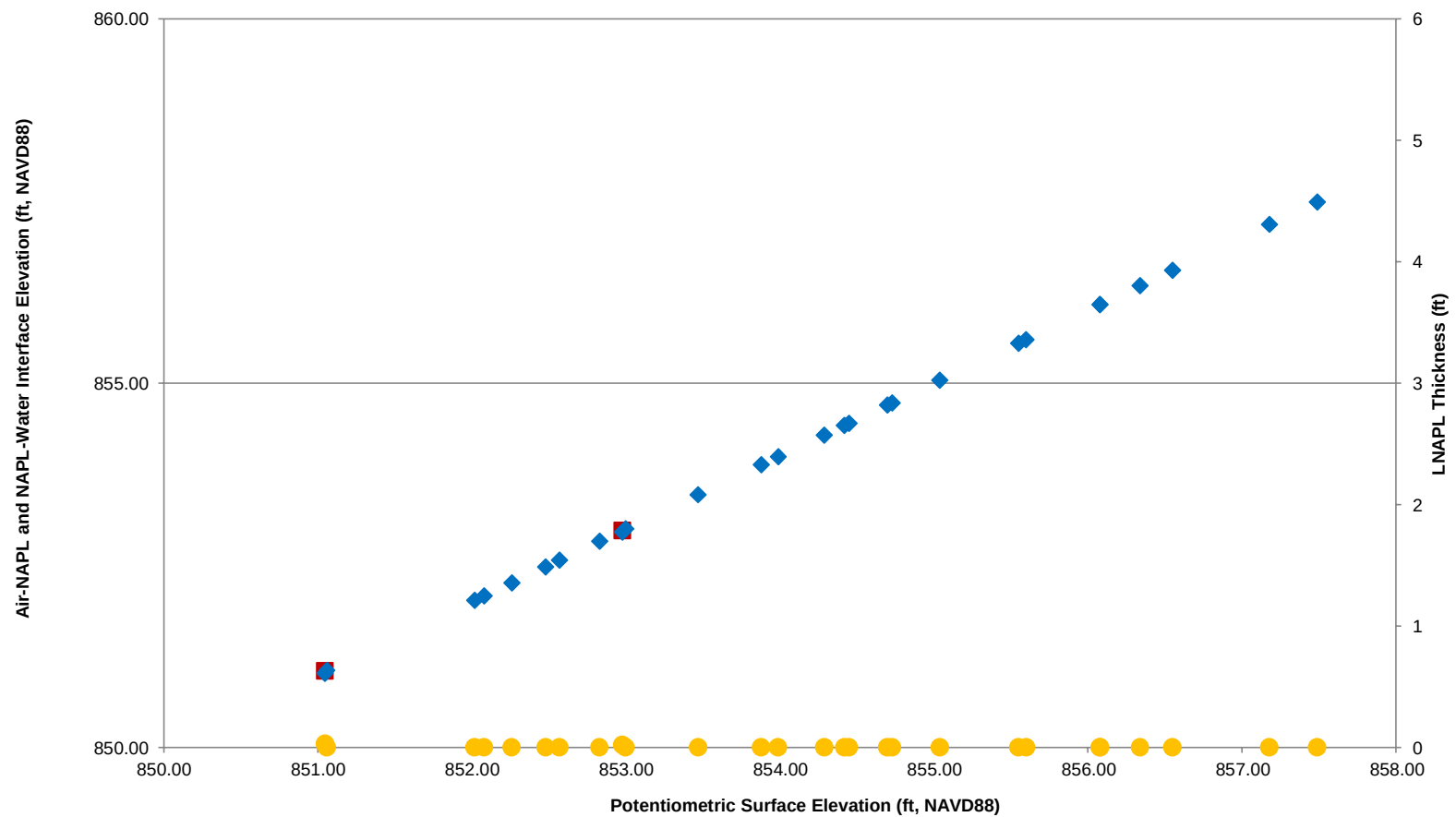
■ Air-NAPL Interface      ◆ NAPL-Water or Air-Water Interface      ● Potentiometric Surface  
■ Concrete      ■ Medium Sand      ■ Clay  
- - - ○ Filter Pack      - - - ◆ Screened Interval  
— NAPL Thickness

|                                                                                                                                                                    |                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                       |                     |
| <b>LMW-12-01 LNAPL HYDROGRAPH</b>                                                                                                                                  |                     |
|  <small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE<br/>A</b> |



- Air-NAPL Interface
 ◆ NAPL-Water or Air-Water Interface
● Potentiometric Surface
- Concrete
 — Medium Sand
— Clay
- Medium Sand
 — Clay
- ◆ Filter Pack
 ● Screened Interval

|                                                                                                                   |                                                                                |
|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| RACER Lansing<br>Lansing, MI                                                                                      |                                                                                |
| <b>LMW-12-01 DIAGNOSTIC GAUGE PLOT</b>                                                                            |                                                                                |
| <span style="font-size: 0.8em; color: #ccc;">Design &amp; Consultancy<br/>for natural and<br/>built assets</span> | <b>FIGURE</b><br><br><span style="font-size: 2em; font-weight: bold;">B</span> |



■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

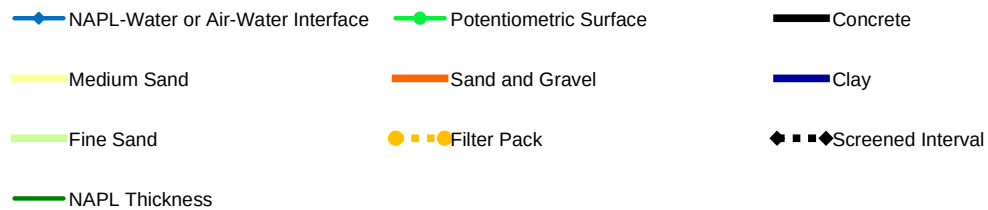
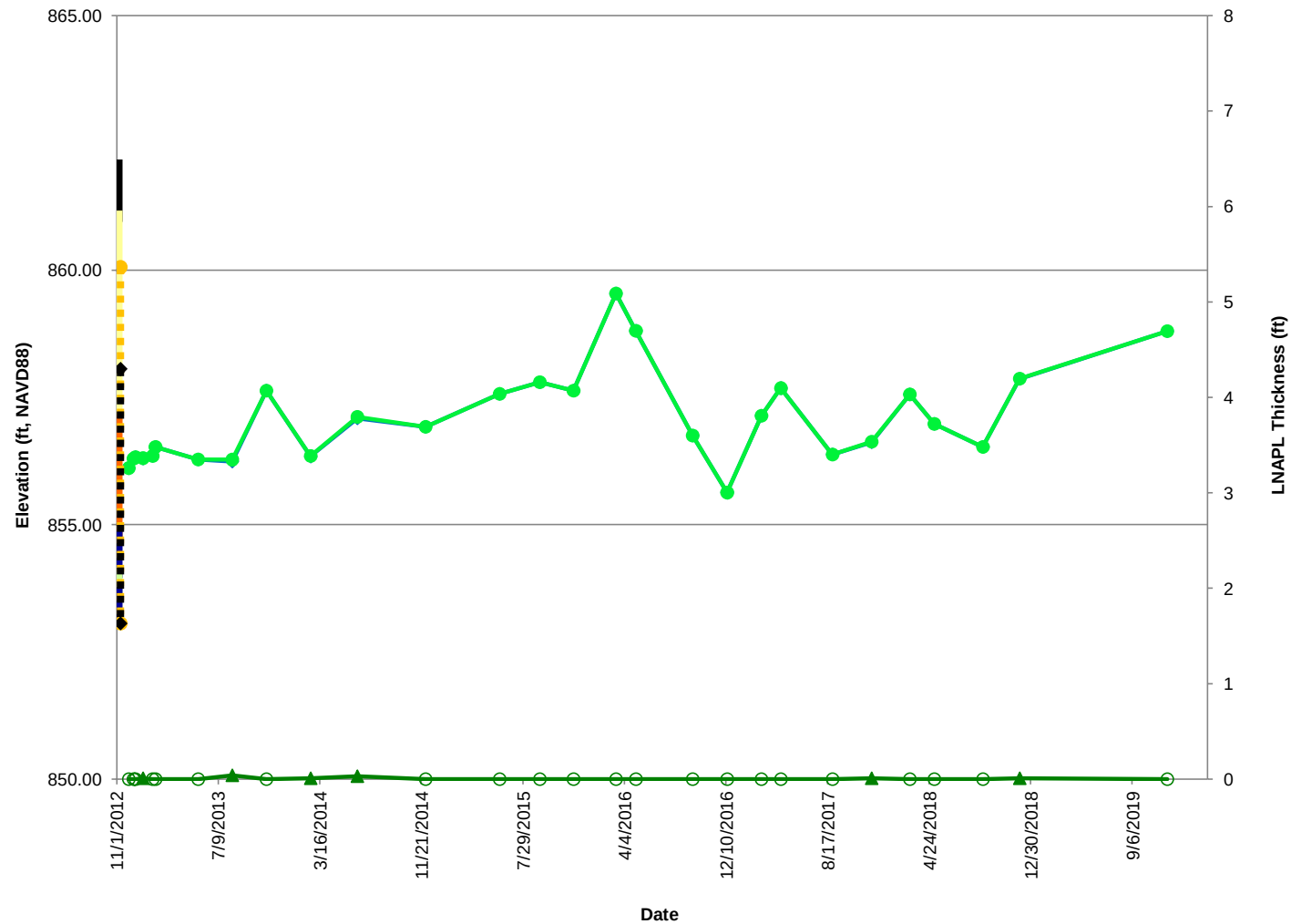
RACER Lansing  
Lansing, MI

**LMW-12-01 DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and  
built assets

FIGURE

**C**



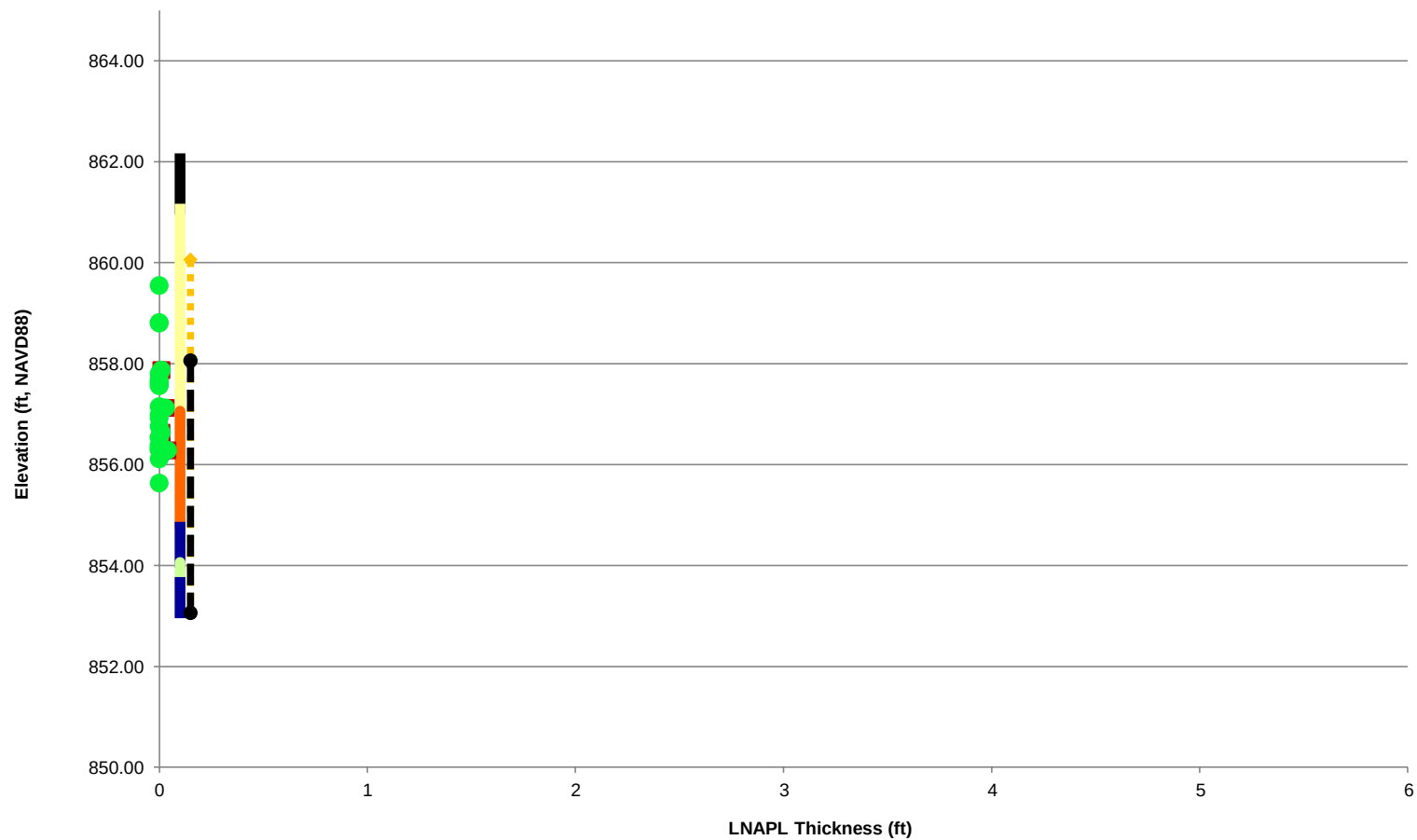
RACER Lansing  
Lansing, MI

# LMW-12-03S LNAPL HYDROGRAPH



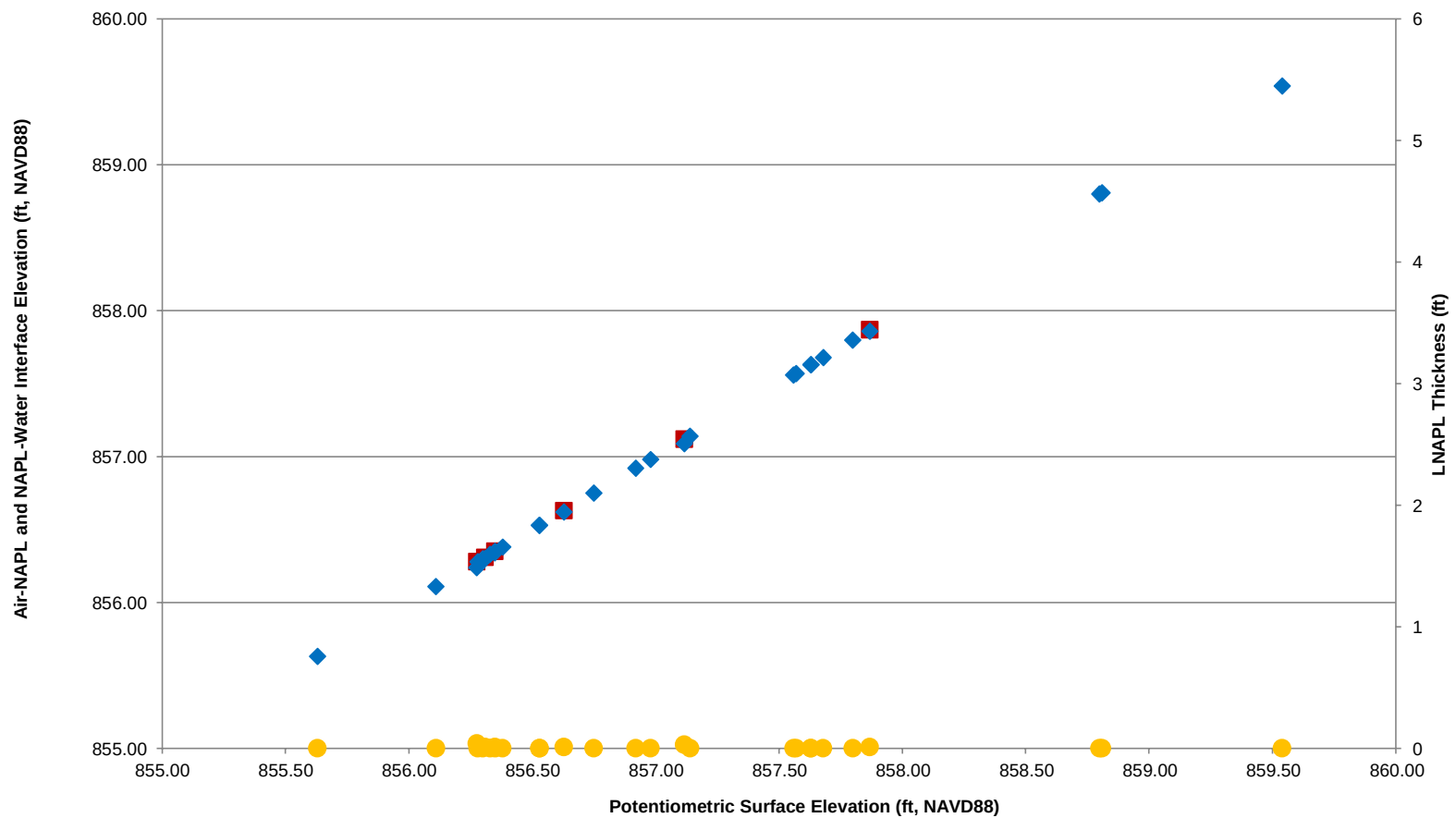
FIGURE

A



- Air-NAPL Interface
 ◆ NAPL-Water or Air-Water Interface
● Potentiometric Surface
- Concrete
 — Medium Sand
— Sand and Gravel
- Clay
 — Fine Sand
— Clay
- ◆ Filter Pack
 ● Screened Interval

|                                                                                                                        |                                                                                |
|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| RACER Lansing<br>Lansing, MI                                                                                           |                                                                                |
| <b>LMW-12-03S DIAGNOSTIC GAUGE PLOT</b>                                                                                |                                                                                |
| <span style="font-size: 0.8em; margin-left: 5px;">Design &amp; Consultancy<br/>for natural and<br/>built assets</span> | <b>FIGURE</b><br><br><span style="font-size: 2em; font-weight: bold;">B</span> |



■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

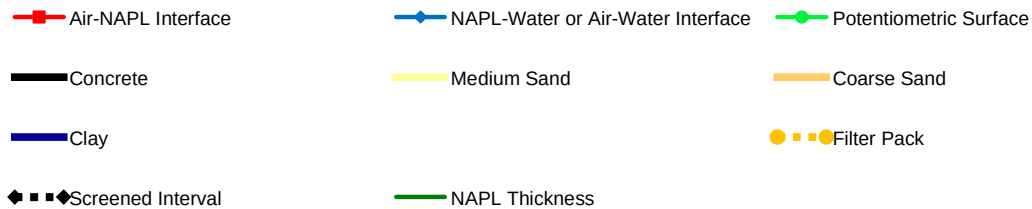
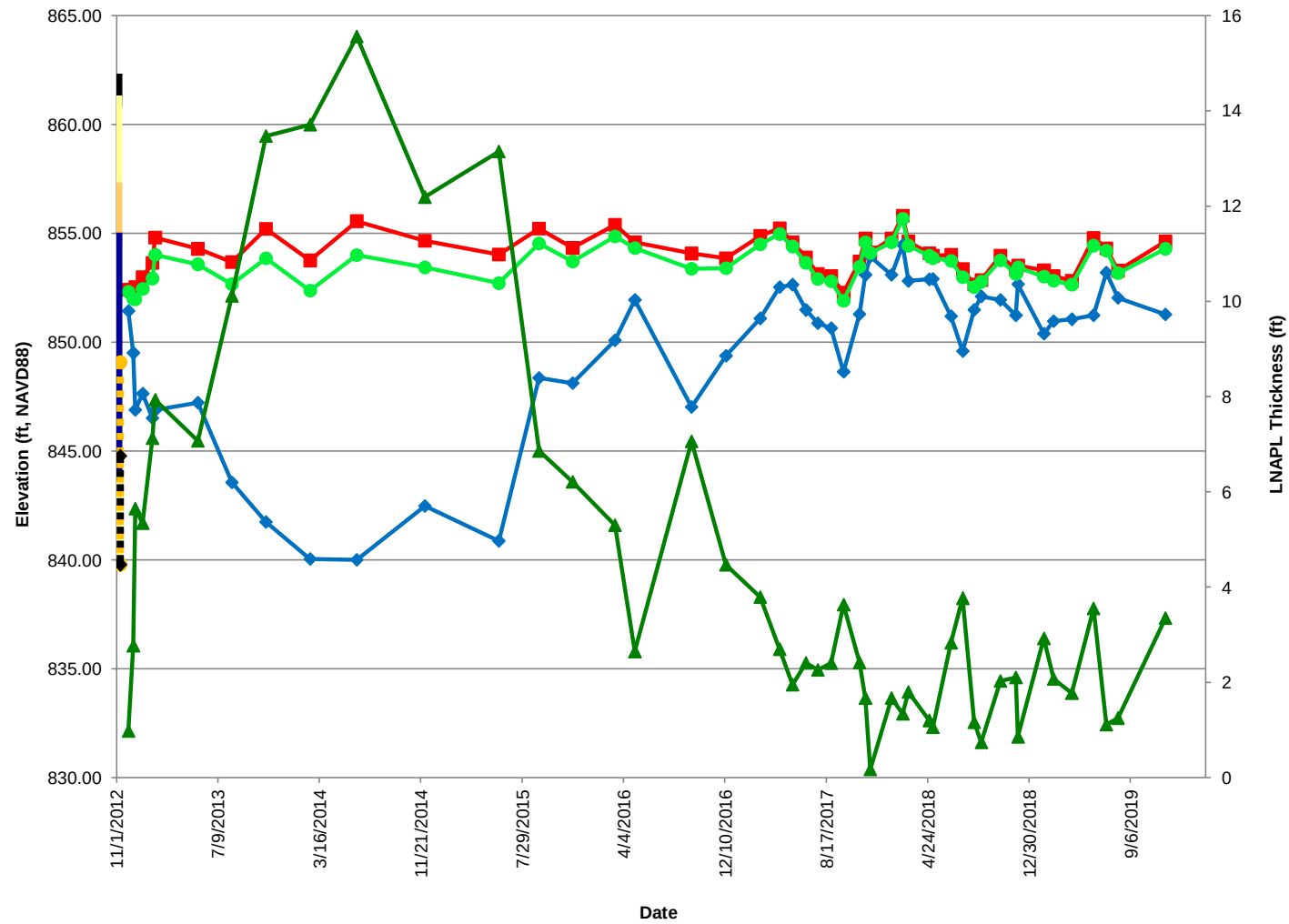
RACER Lansing  
Lansing, MI

**LMW-12-03S DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and  
built assets

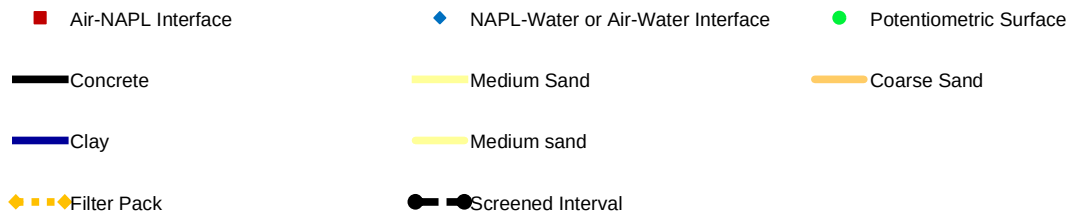
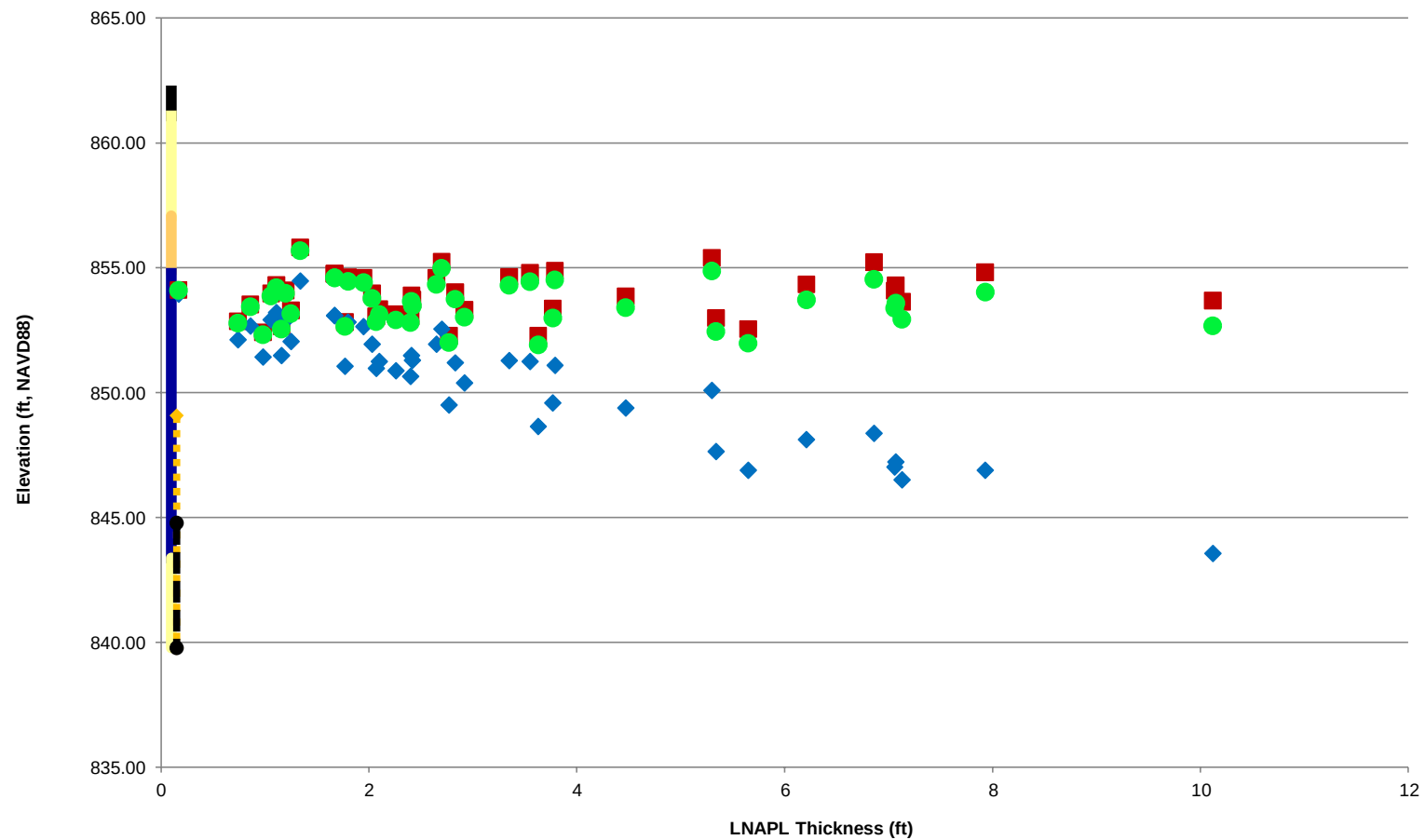
FIGURE

**C**

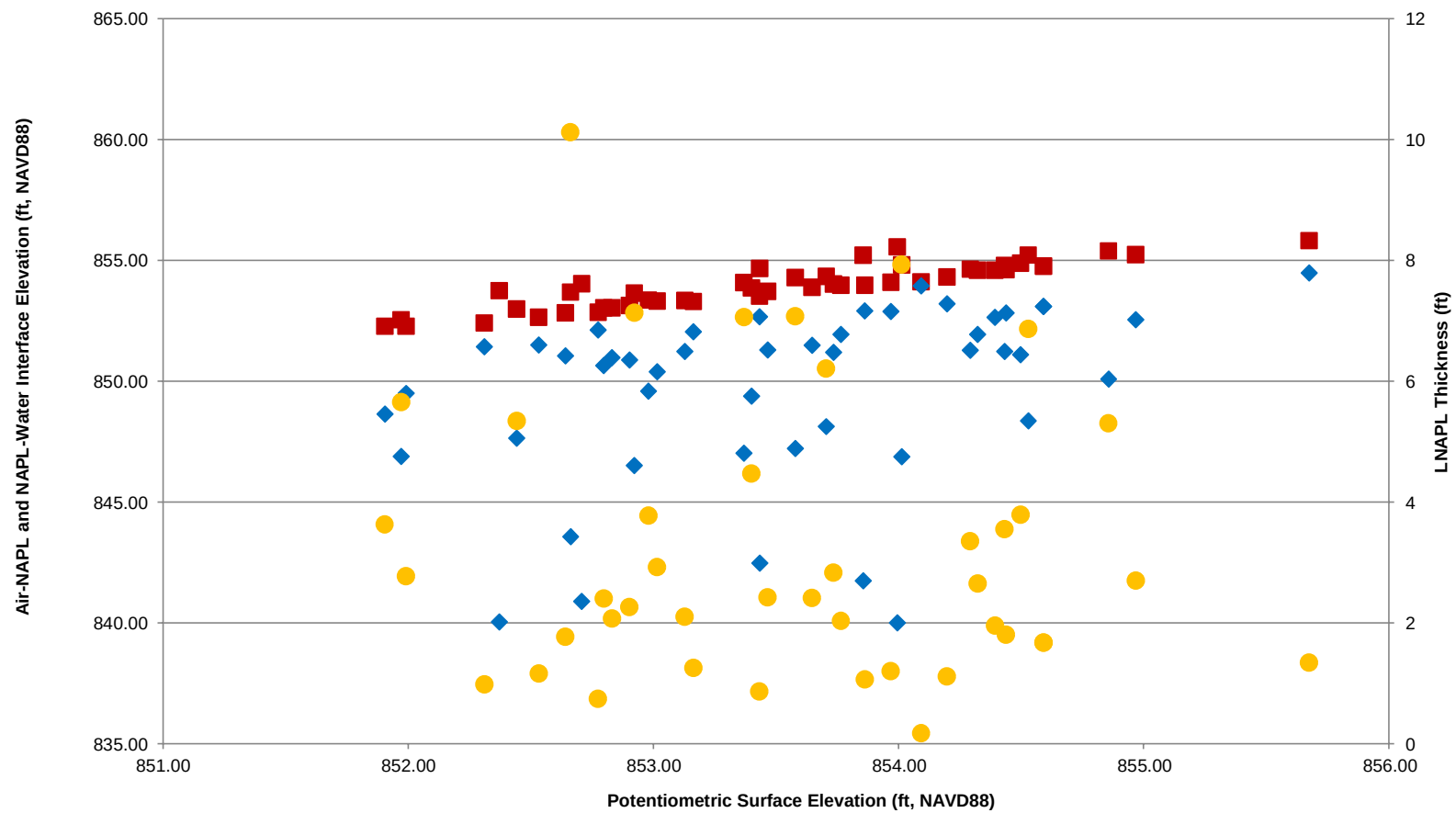


|                                                                              |                                                                                |
|------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| RACER Lansing<br>Lansing, MI                                                 |                                                                                |
| <b>LMW-12-03D LNAPL HYDROGRAPH</b>                                           |                                                                                |
| <small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><br><span style="font-size: 2em; font-weight: bold;">A</span> |





|                                                                                                                                                                                      |                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                         |                           |
| <b>LMW-12-03D DIAGNOSTIC GAUGE PLOT</b>                                                                                                                                              |                           |
|  <b>ARCADIS</b><br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><b>B</b> |



■ Air-NAPL Interface      ◆ NAPL-Water or Air-Water Interface      ● NAPL Thickness

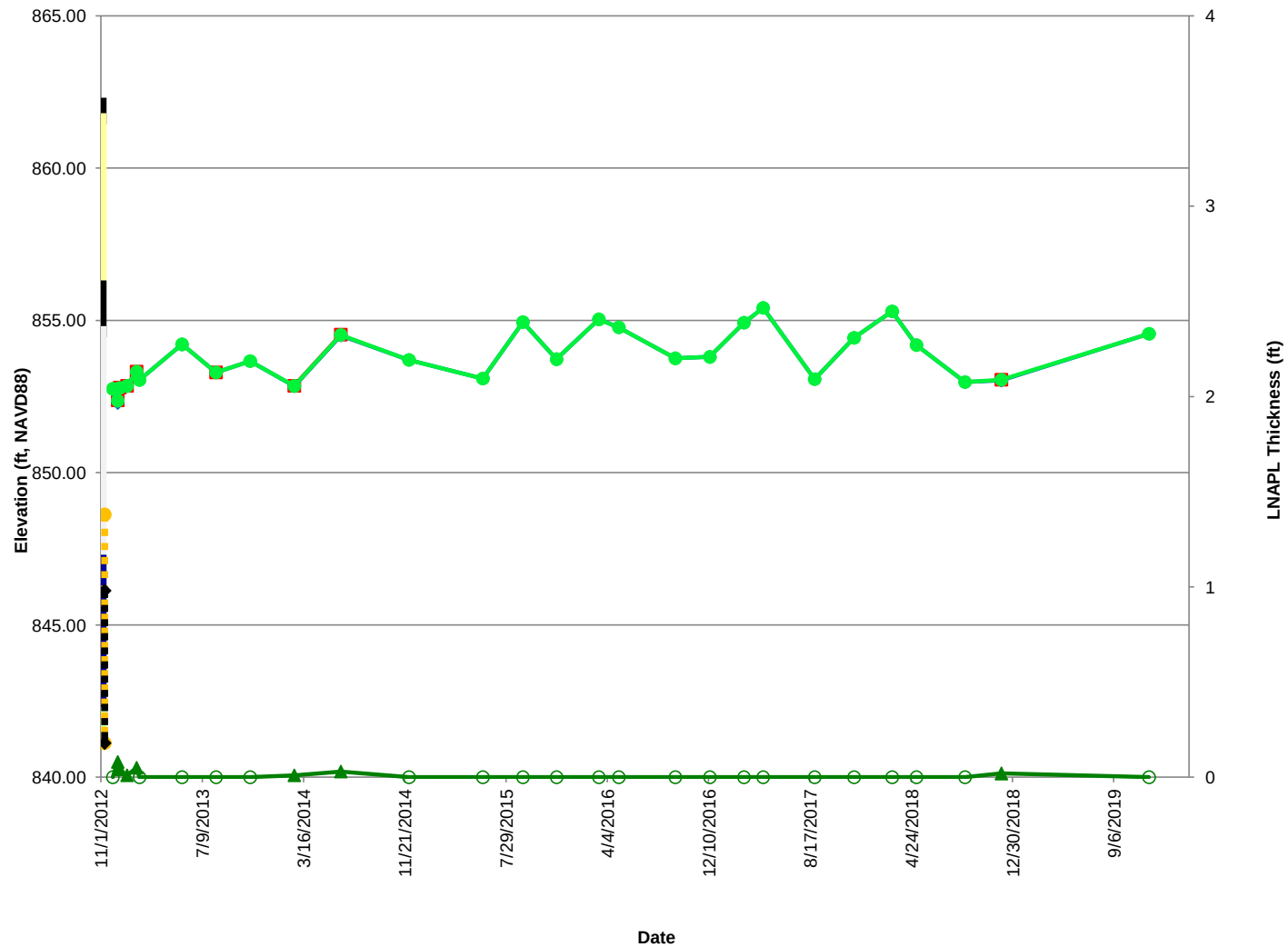
RACER Lansing  
Lansing, MI

**LMW-12-03D DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and  
built assets

FIGURE

**C**



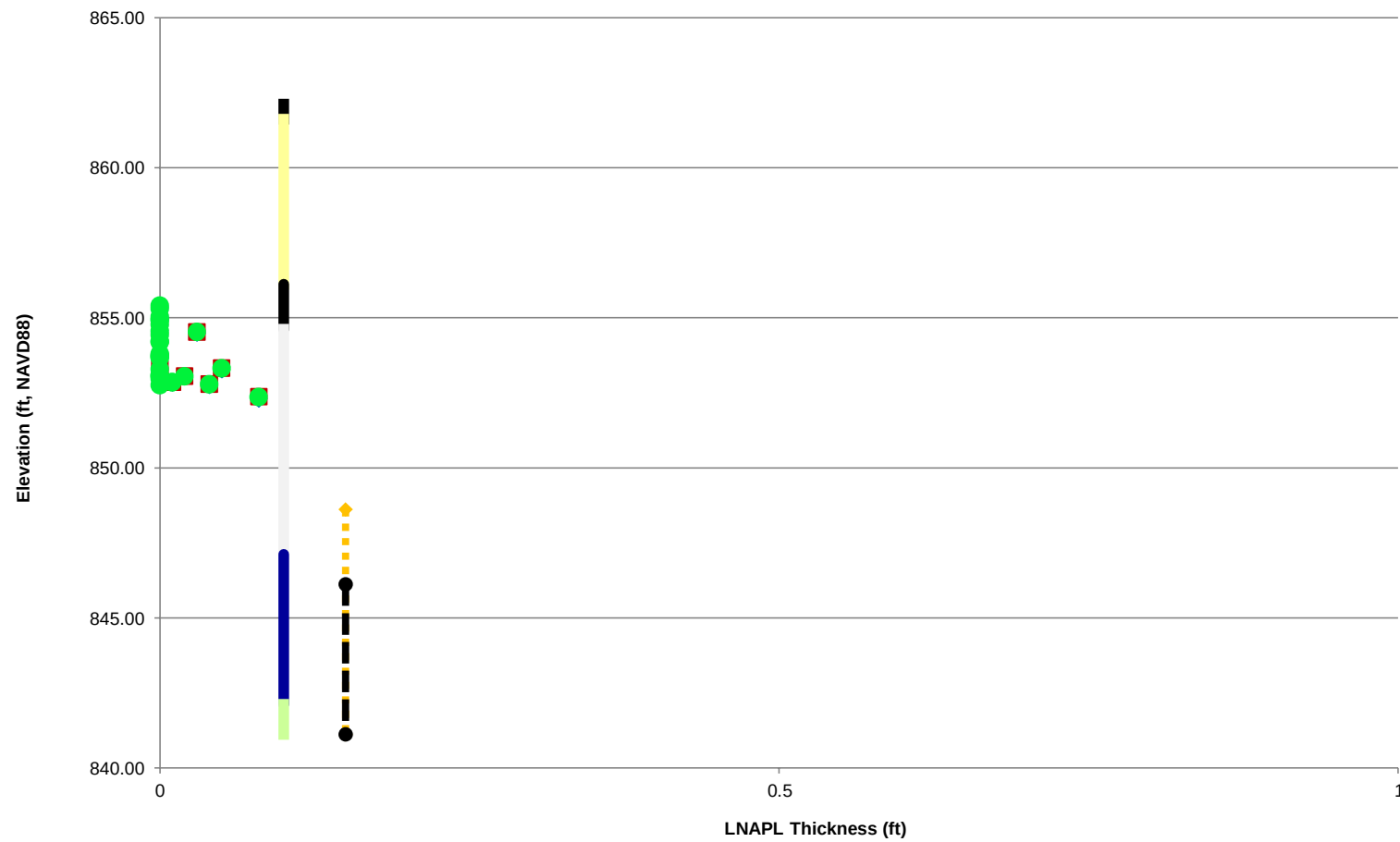
RACER Lansing  
Lansing, MI

### LMW-12-04 LNAPL HYDROGRAPH

**ARCADIS** Design & Consultancy  
for natural and built assets

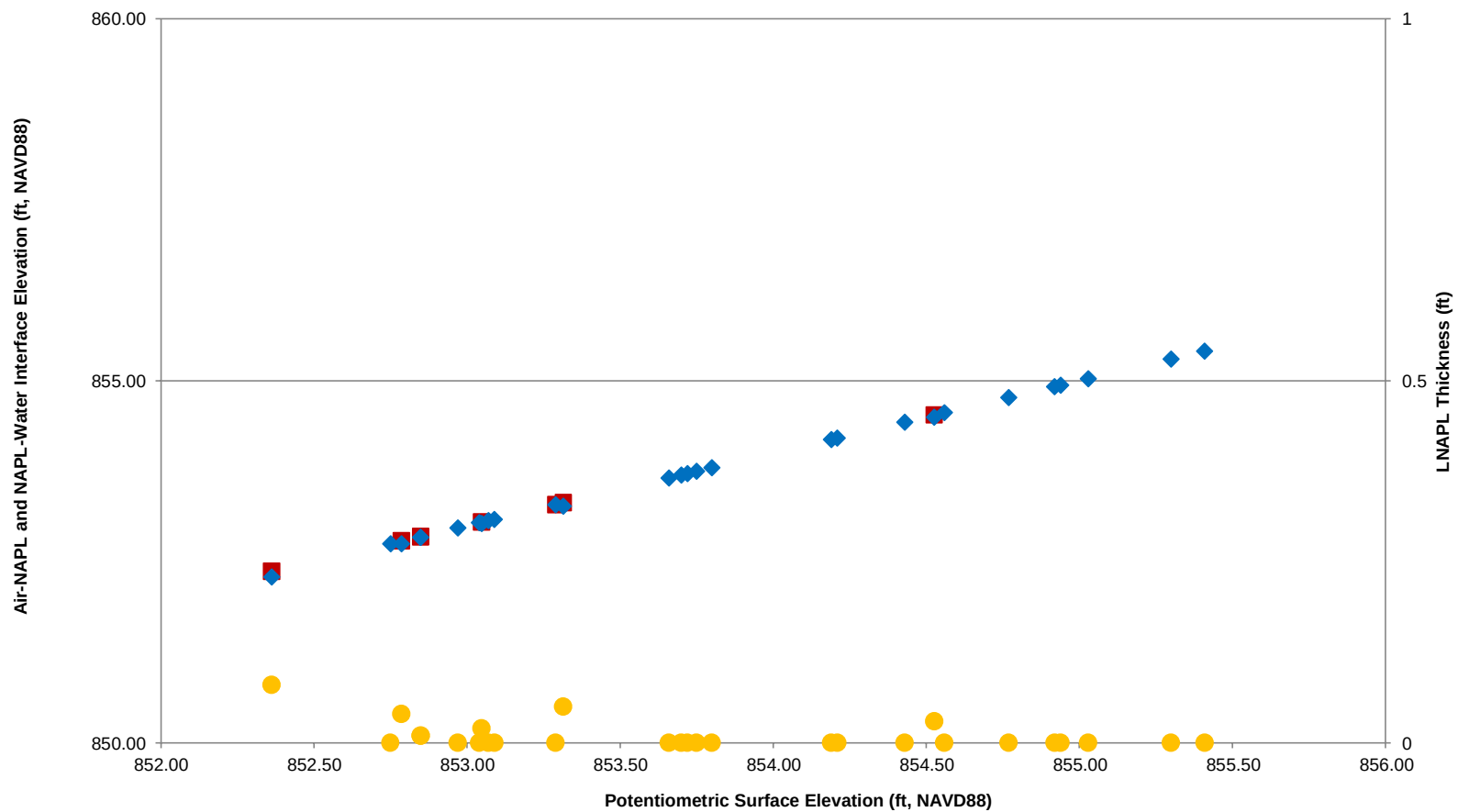
FIGURE

**A**



- Air-NAPL Interface
- ◆ NAPL-Water or Air-Water Interface
- Potentiometric Surface
- Concrete
- Medium Sand
- Concrete
- No Recovery
- Clay
- Fine Sand
- - - ◆ Filter Pack
- — ● Screened Interval

|                                        |                                                                                |
|----------------------------------------|--------------------------------------------------------------------------------|
| RACER Lansing<br>Lansing, MI           |                                                                                |
| <b>LMW-12-04 DIAGNOSTIC GAUGE PLOT</b> |                                                                                |
|                                        | <b>FIGURE</b><br><br><span style="font-size: 2em; font-weight: bold;">B</span> |



■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

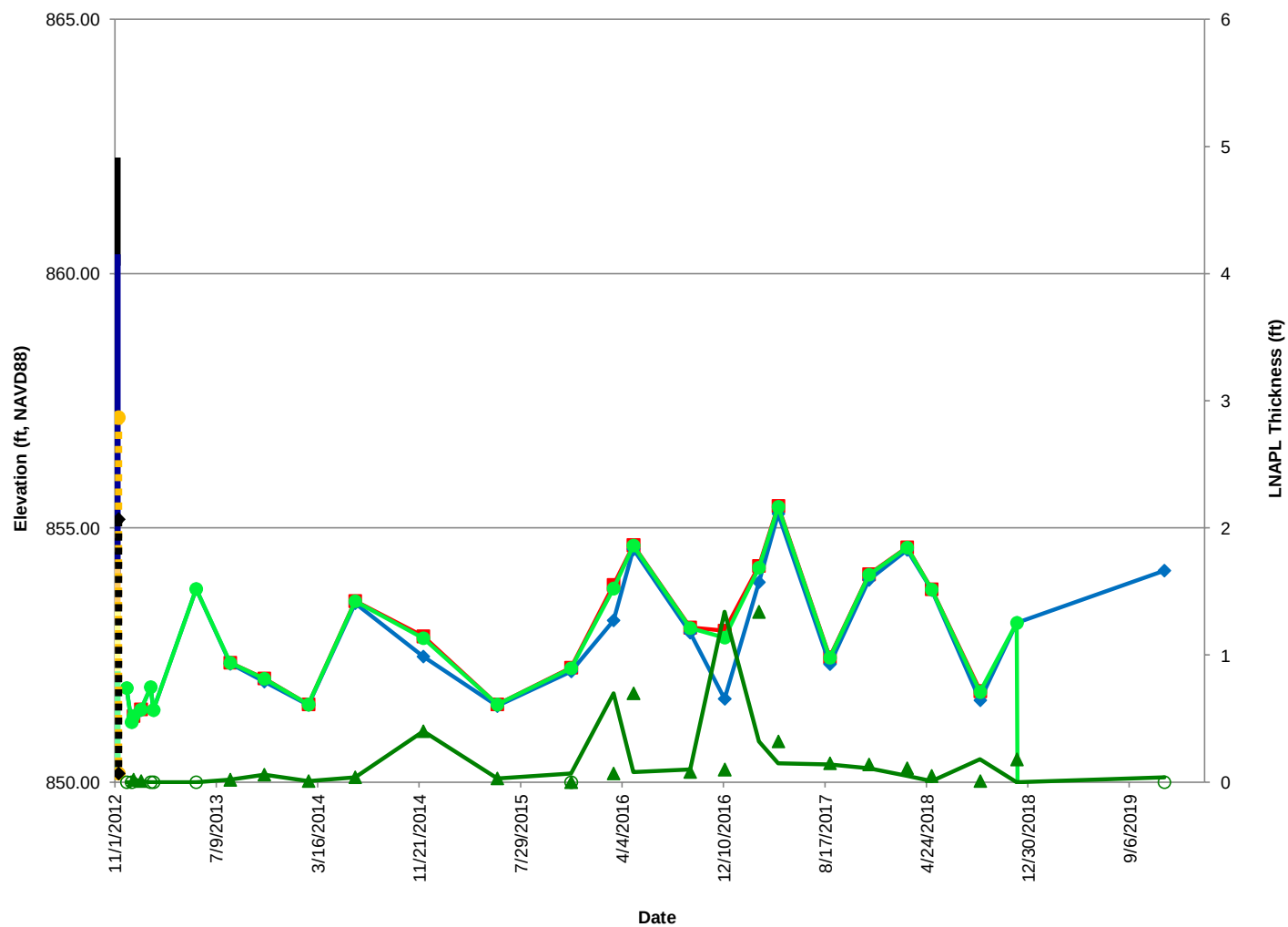
● NAPL Thickness

RACER Lansing  
Lansing, MI

LMW-12-04 DIAGNOSTIC GAUGE PLOT

**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE  
**C**



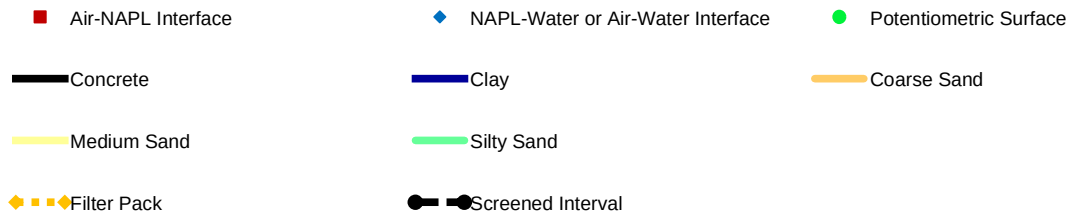
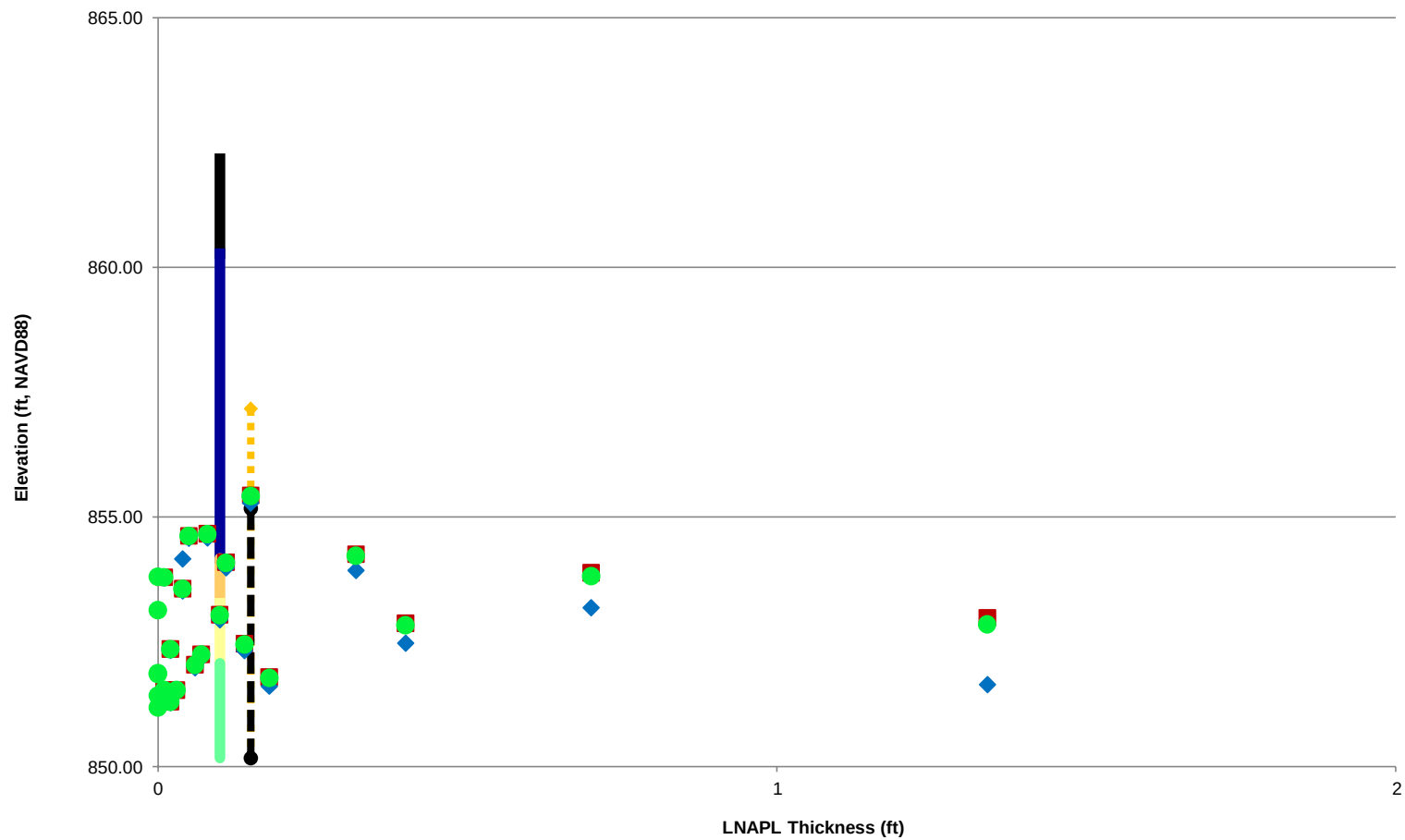
RACER Lansing  
Lansing, MI

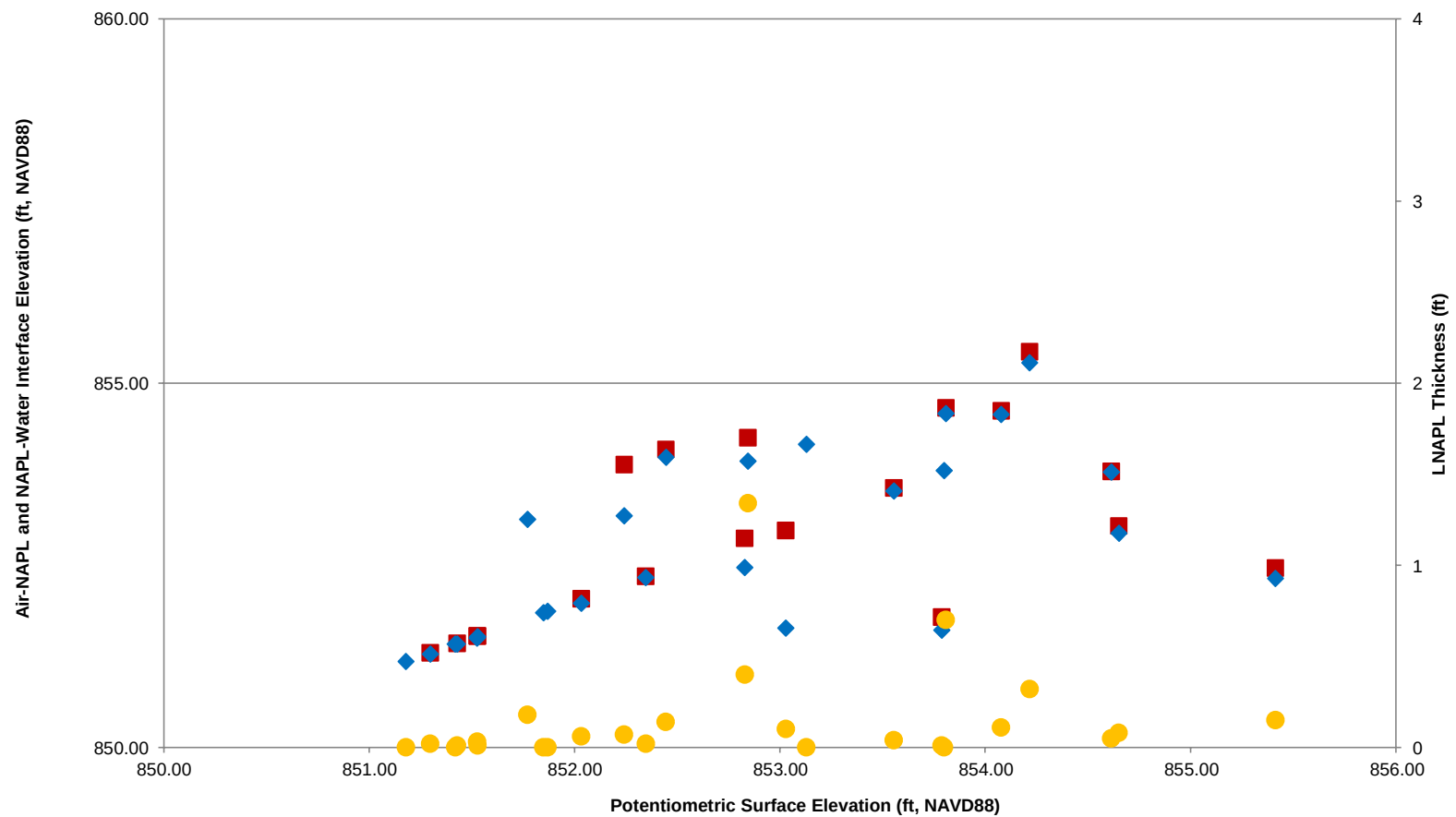
# LMW-12-05 LNAPL HYDROGRAPH

**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE

**A**

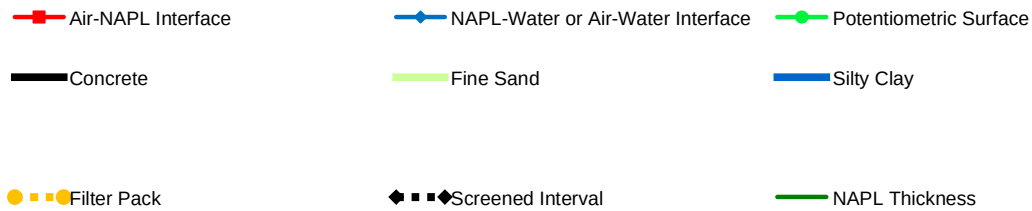
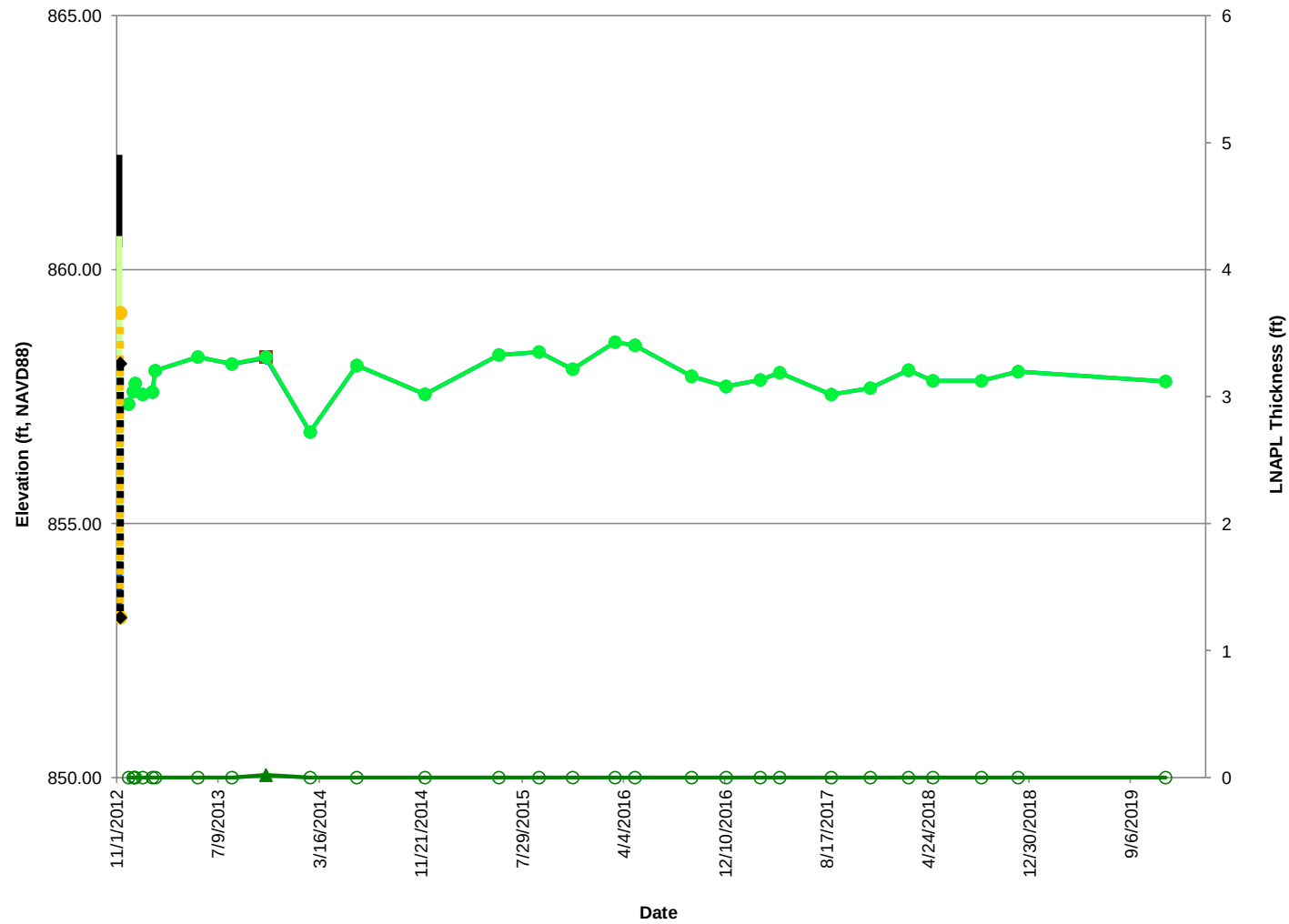




■ Air-NAPL Interface
 ◆ NAPL-Water or Air-Water Interface
 ● NAPL Thickness

|                                                                                                                                                                               |                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                  |                           |
| <b>LMW-12-05 DIAGNOSTIC GAUGE PLOT</b>                                                                                                                                        |                           |
|  ARCADIS<br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><b>C</b> |





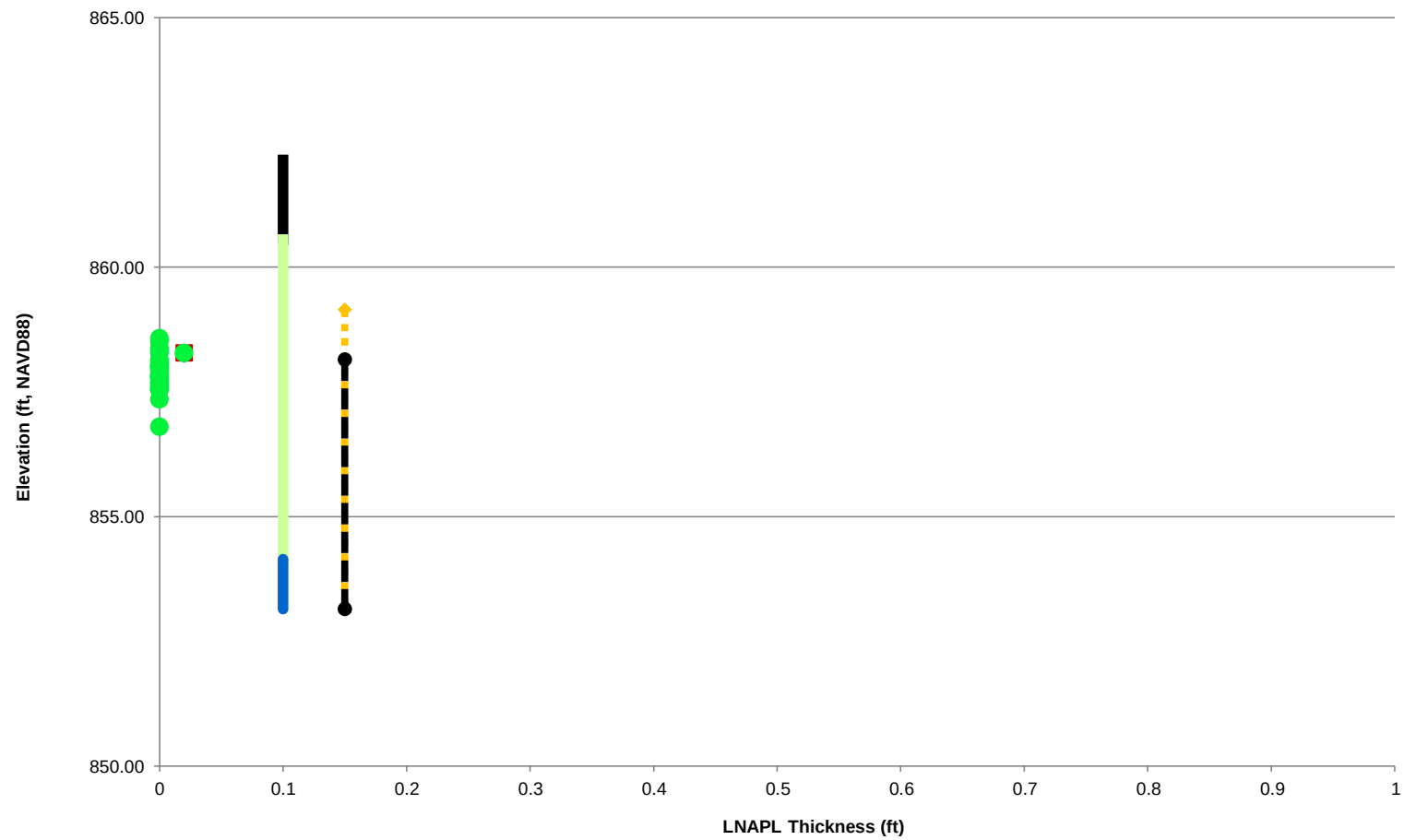
RACER Lansing  
Lansing, MI

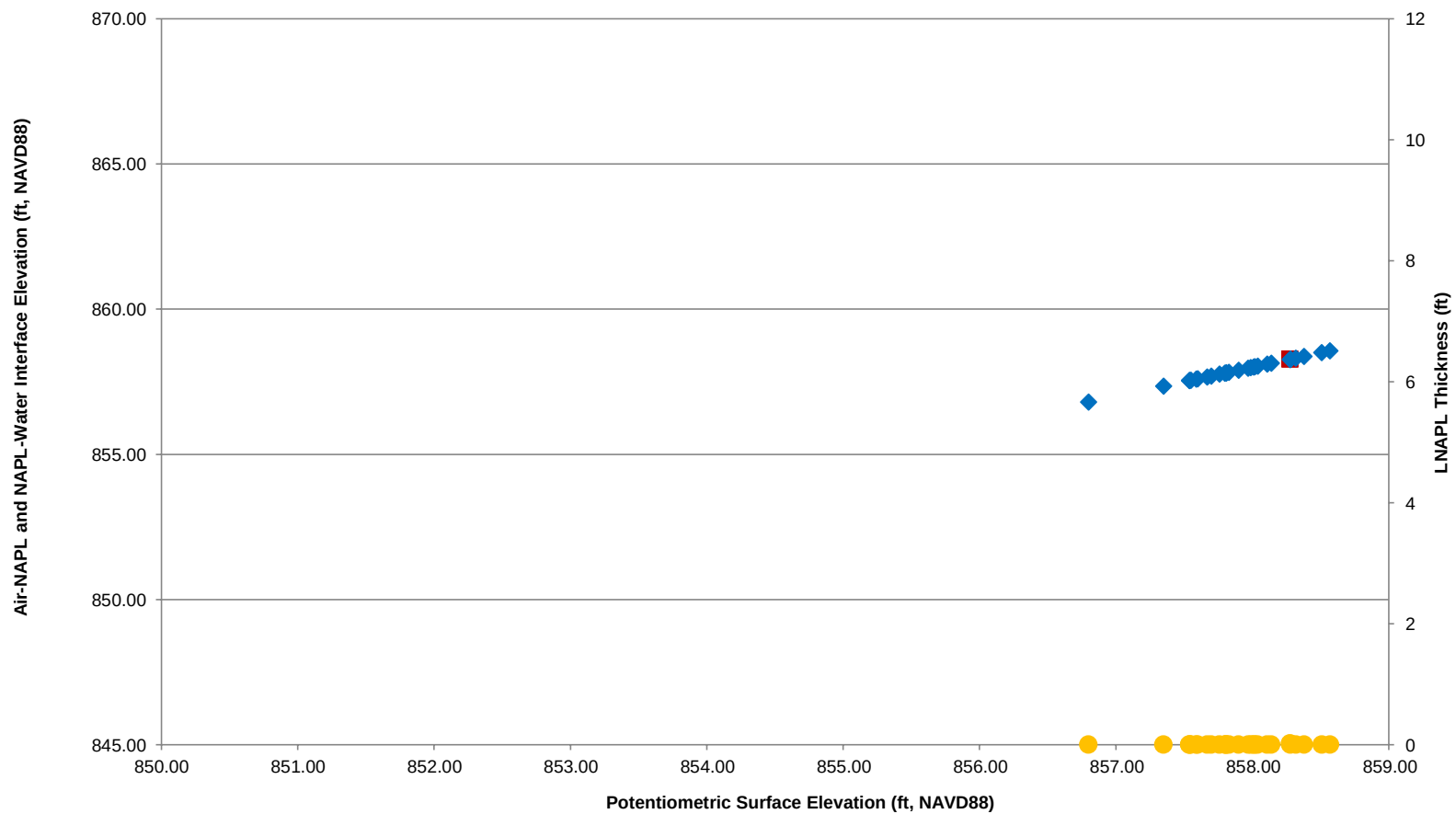
### LMW-12-06 LNAPL HYDROGRAPH



FIGURE

**A**





■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

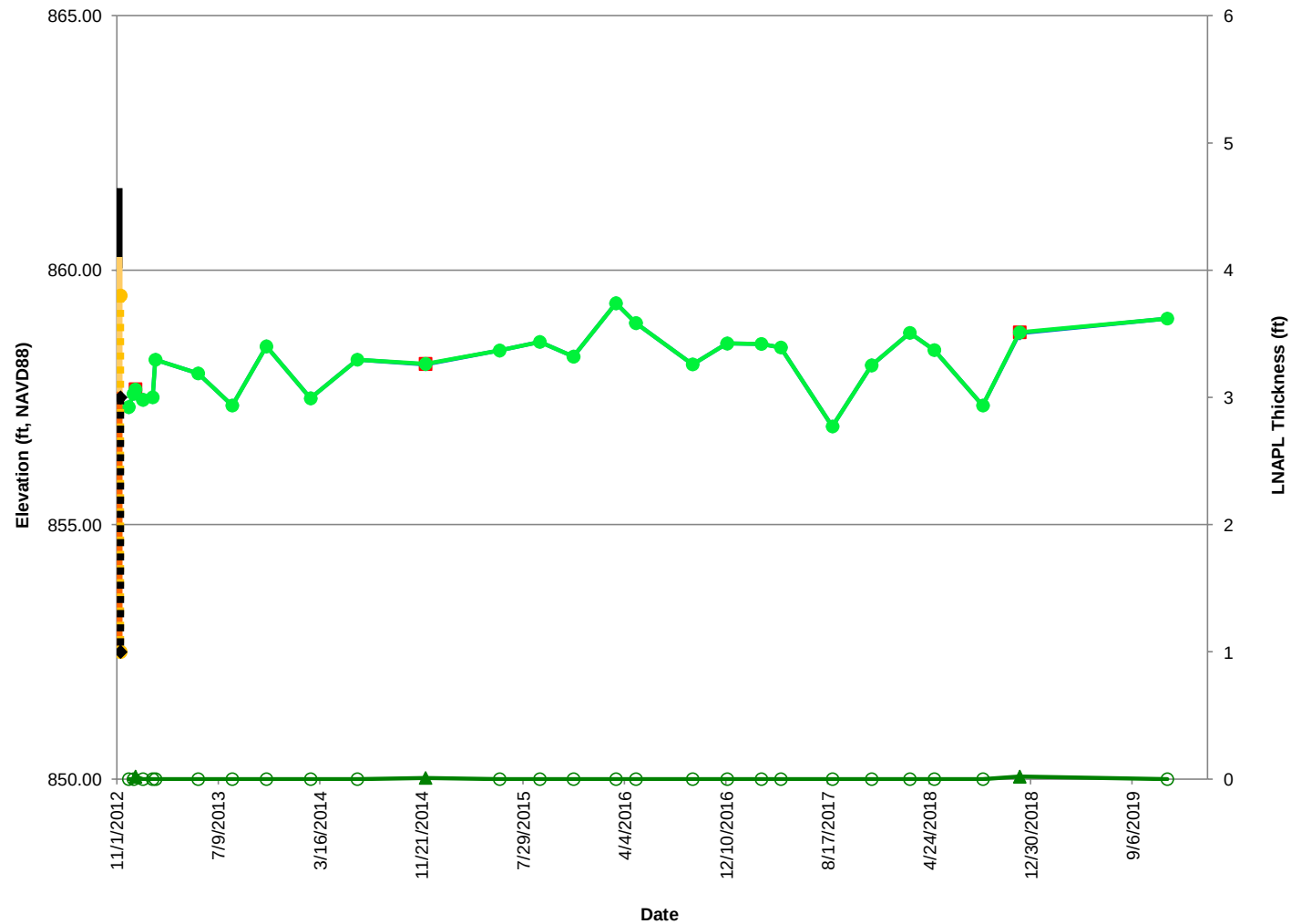
RACER Lansing  
Lansing, MI

**LMW-12-06 DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and  
built assets

FIGURE

**C**



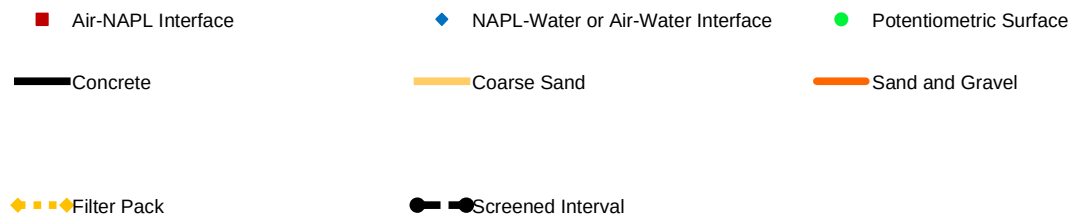
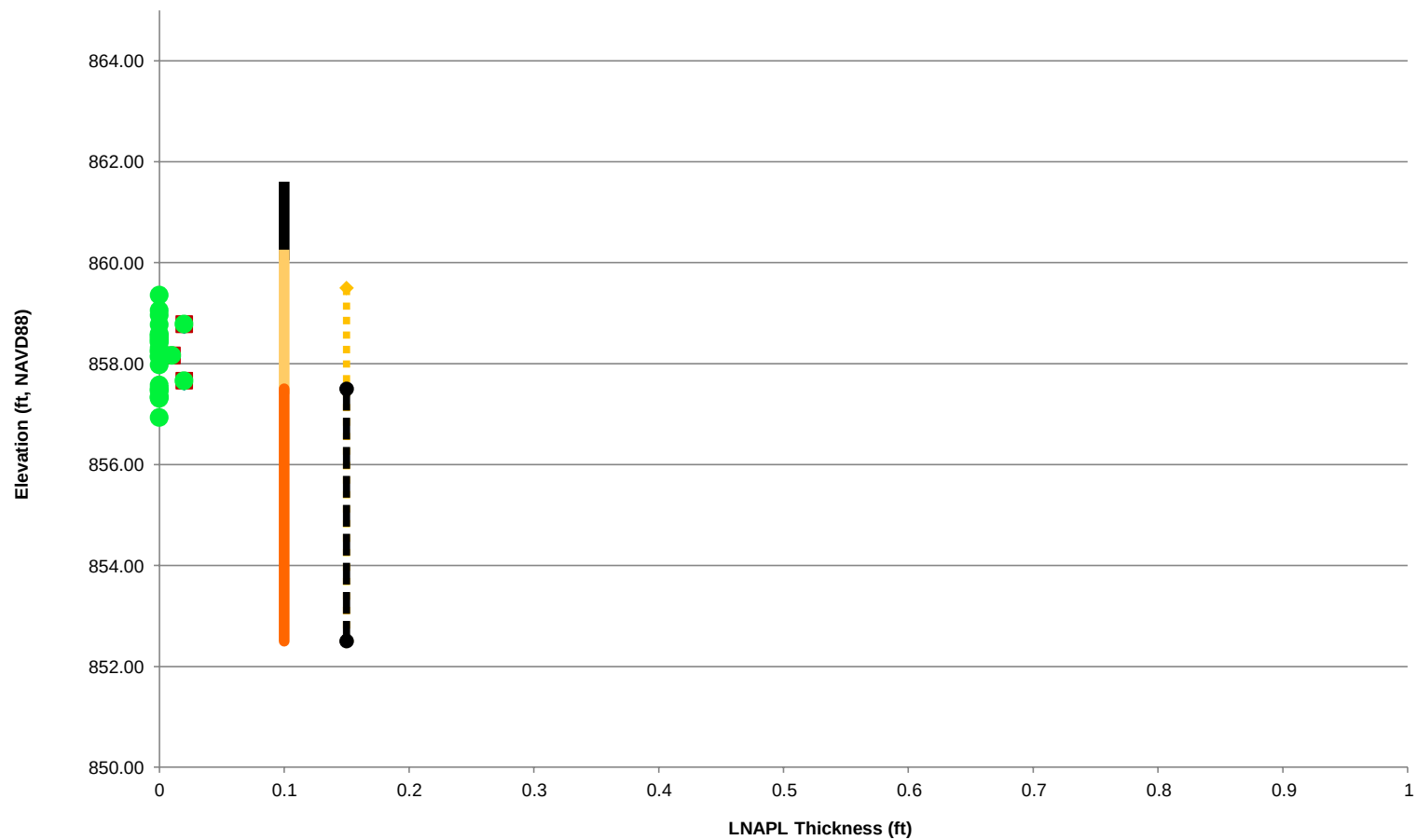
RACER Lansing  
Lansing, MI

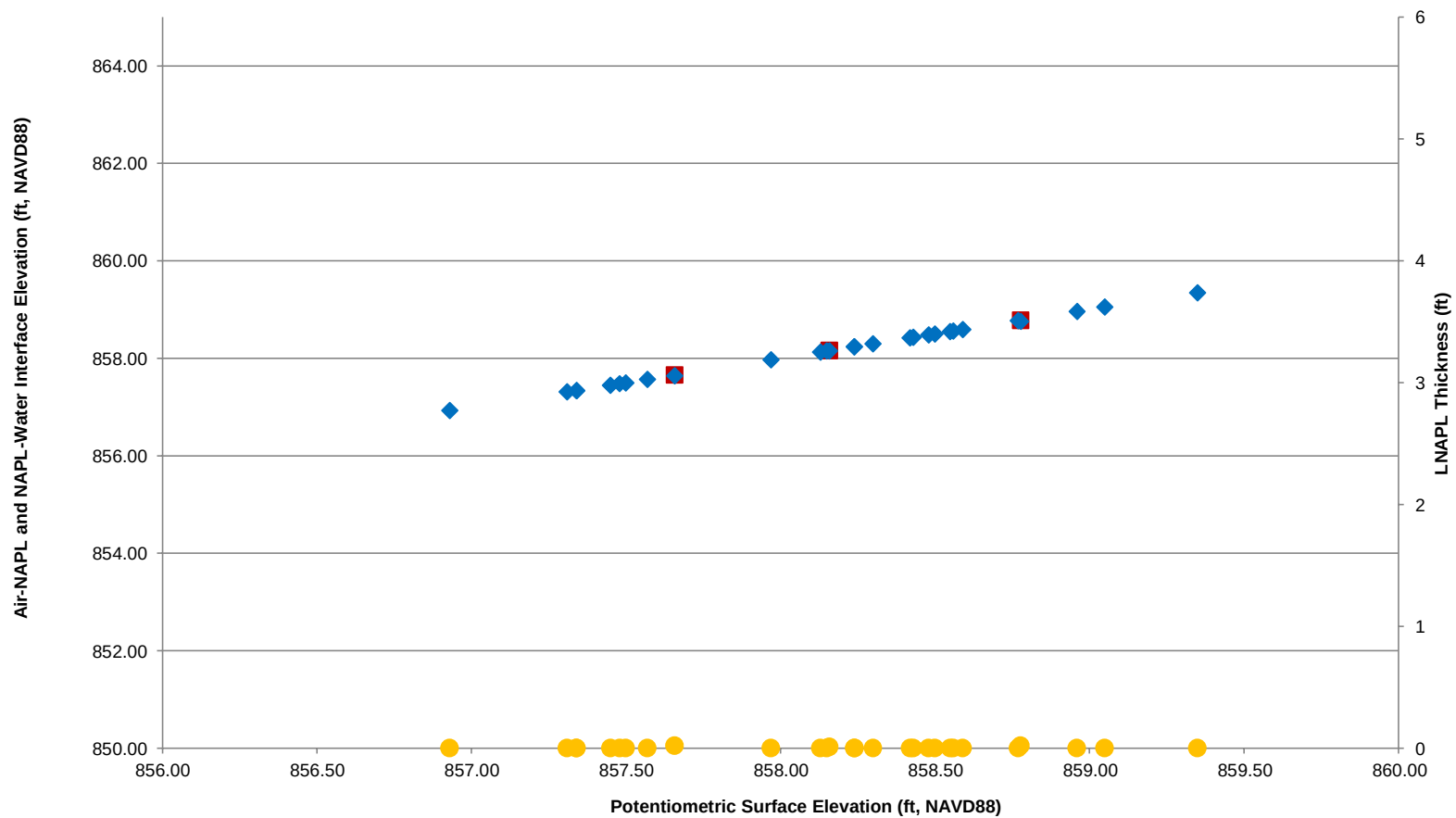
### LMW-12-07 LNAPL HYDROGRAPH

**ARCADIS** Design & Consultancy  
for natural and  
built assets

FIGURE

**A**





■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

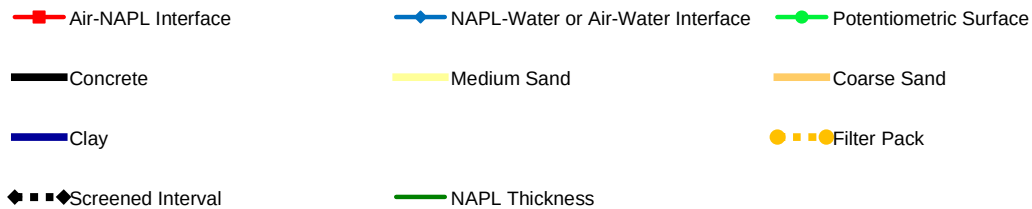
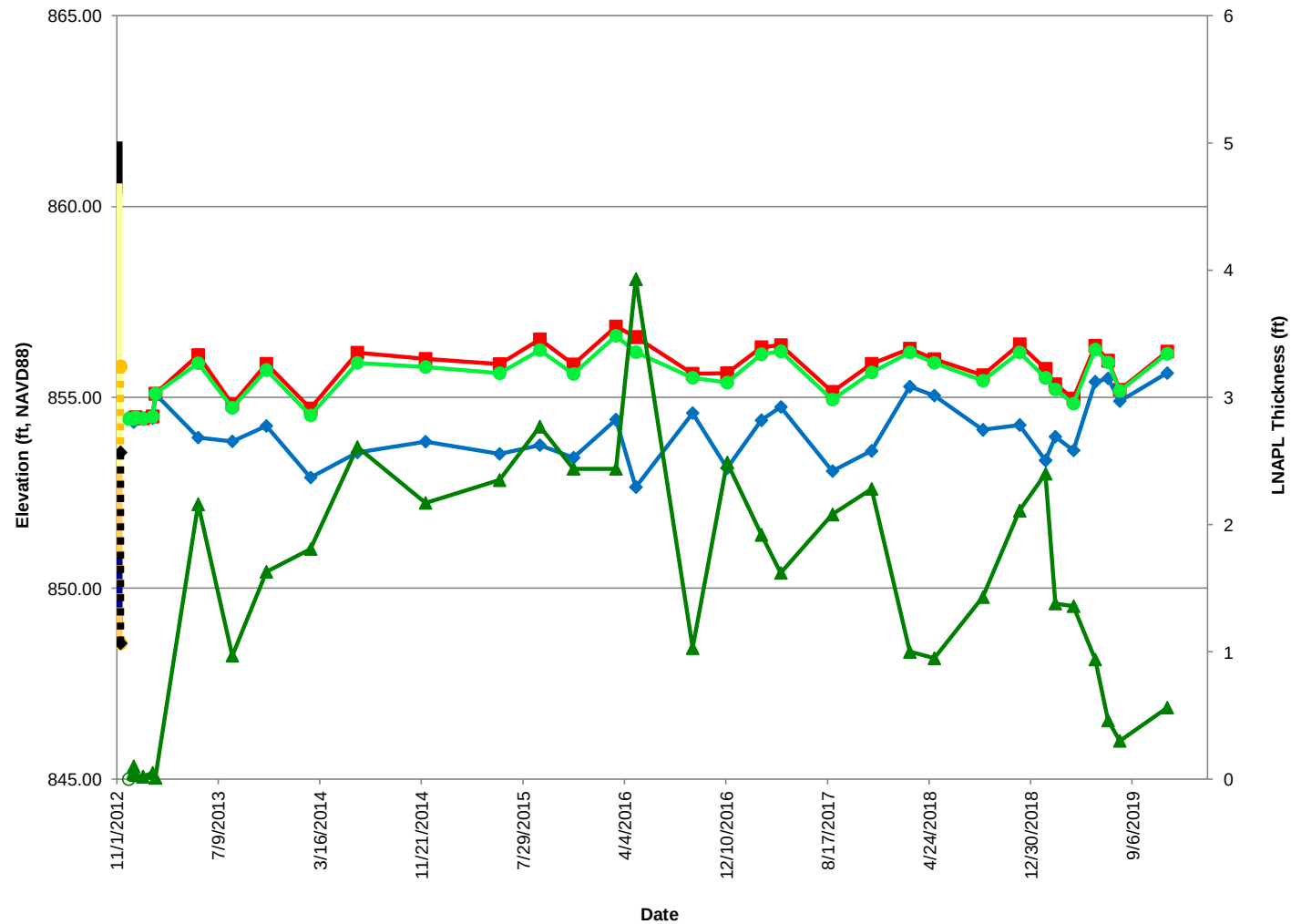
RACER Lansing  
Lansing, MI

**LMW-12-07 DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and  
built assets

FIGURE

**C**



RACER Lansing  
Lansing, MI

### LMW-12-08 LNAPL HYDROGRAPH

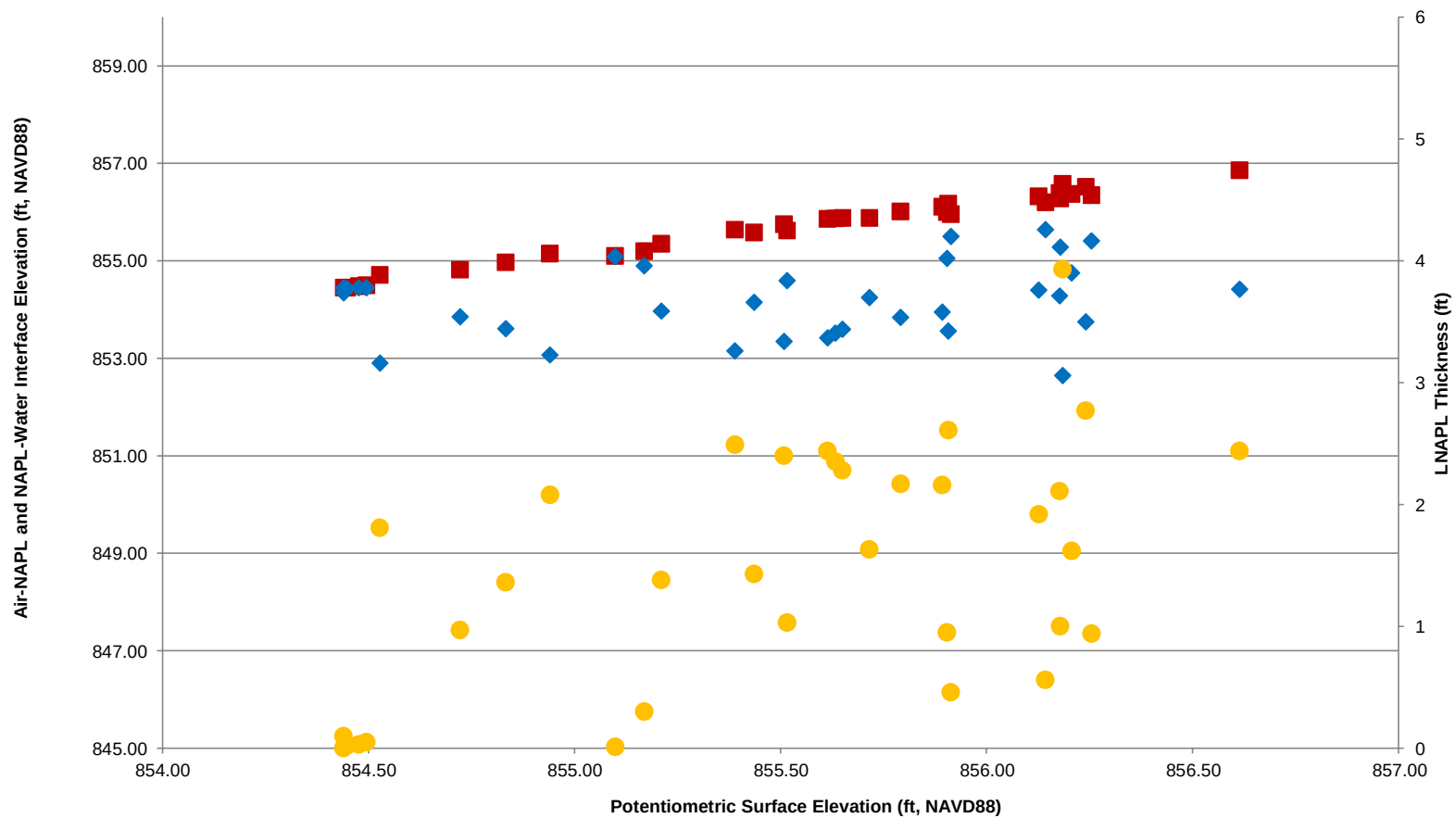
**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE

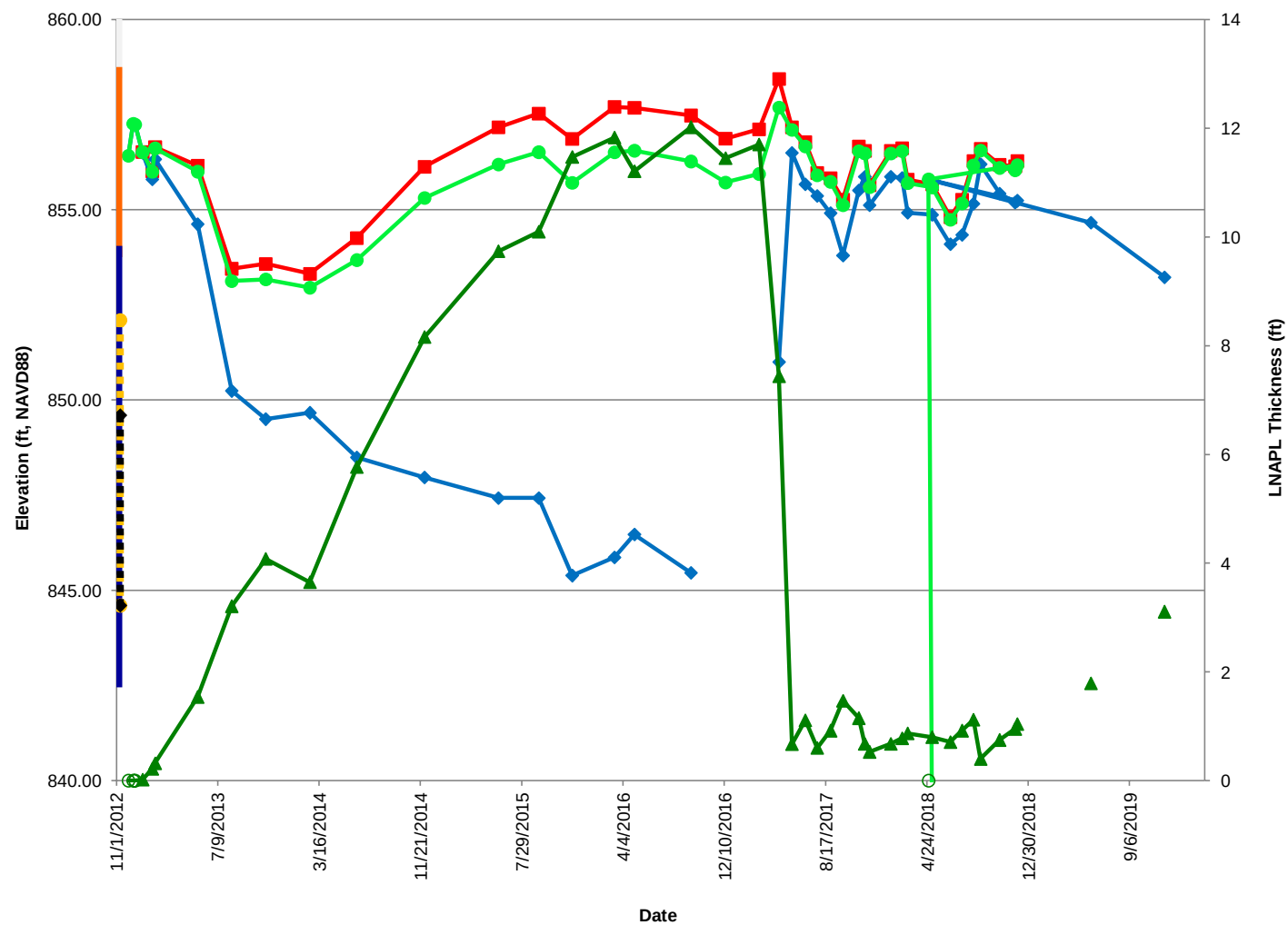
**A**





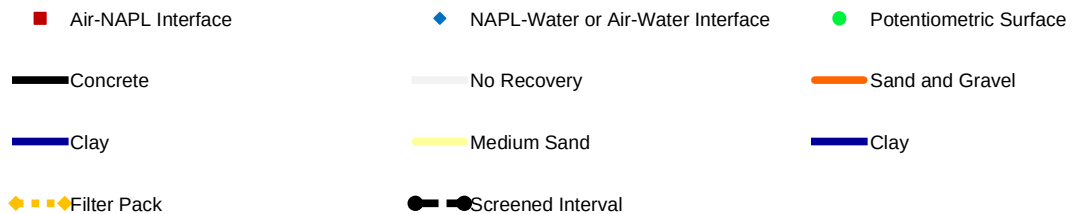
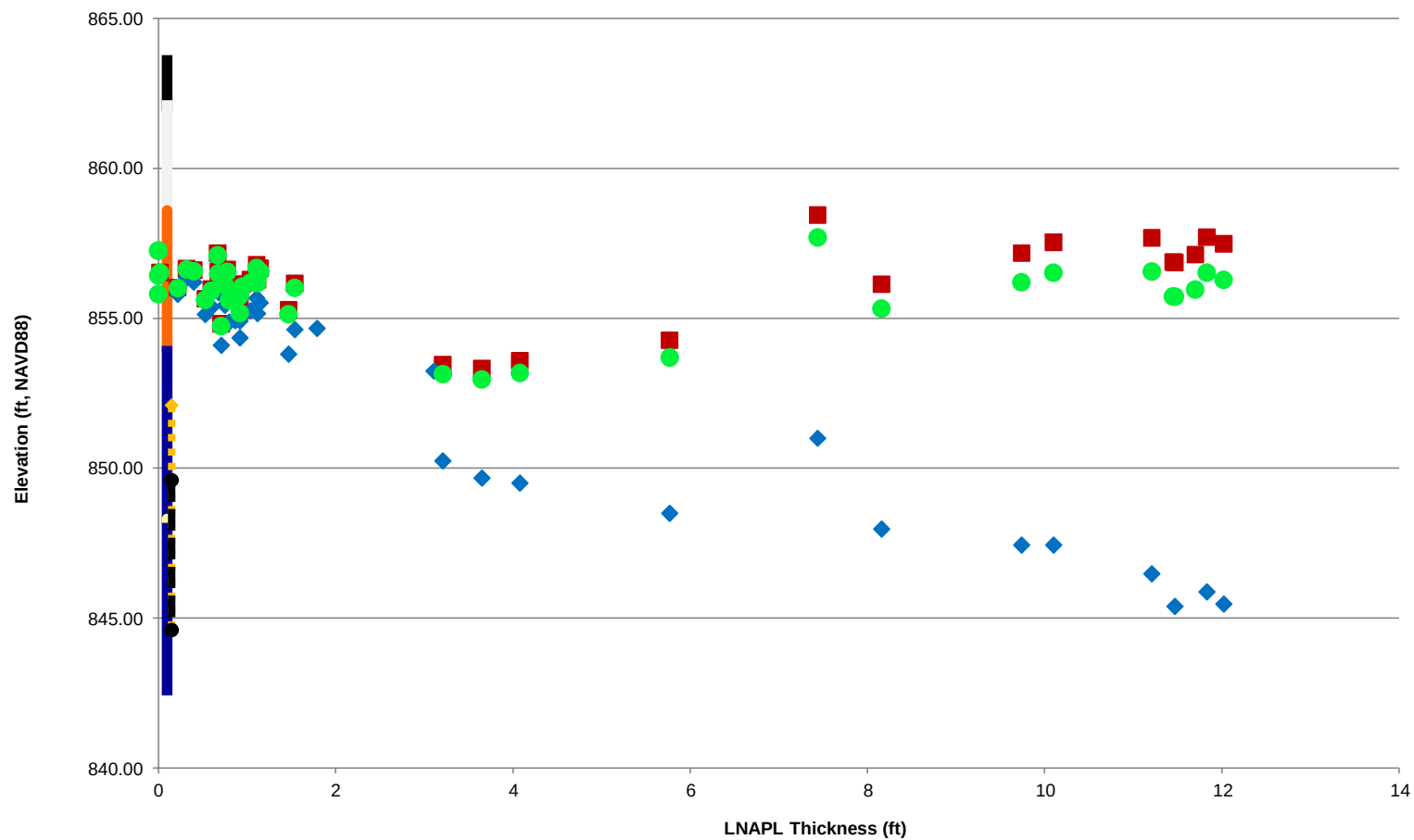


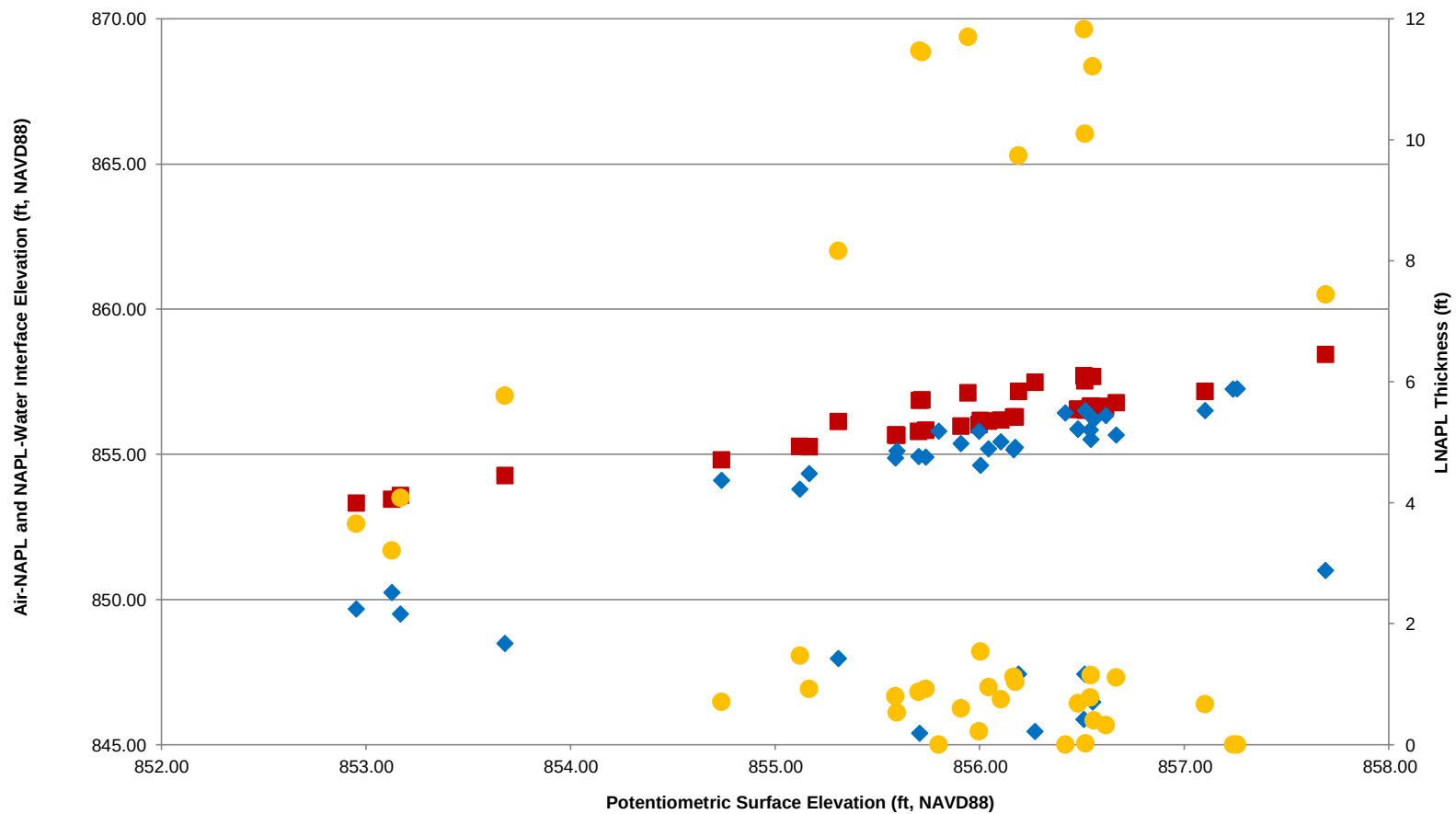
■ Air-NAPL Interface
 ◆ NAPL-Water or Air-Water Interface
 ● NAPL Thickness



- Series2
- Concrete
- Clay
- Screened Interval
- NAPL-Water or Air-Water Interface
- No Recovery
- Medium Sand
- Series3
- Potentiometric Surface
- Sand and Gravel
- Filter Pack

|                              |                           |
|------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI |                           |
| LMW-12-10 LNAPL HYDROGRAPH   |                           |
|                              | <b>FIGURE</b><br><b>A</b> |





■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

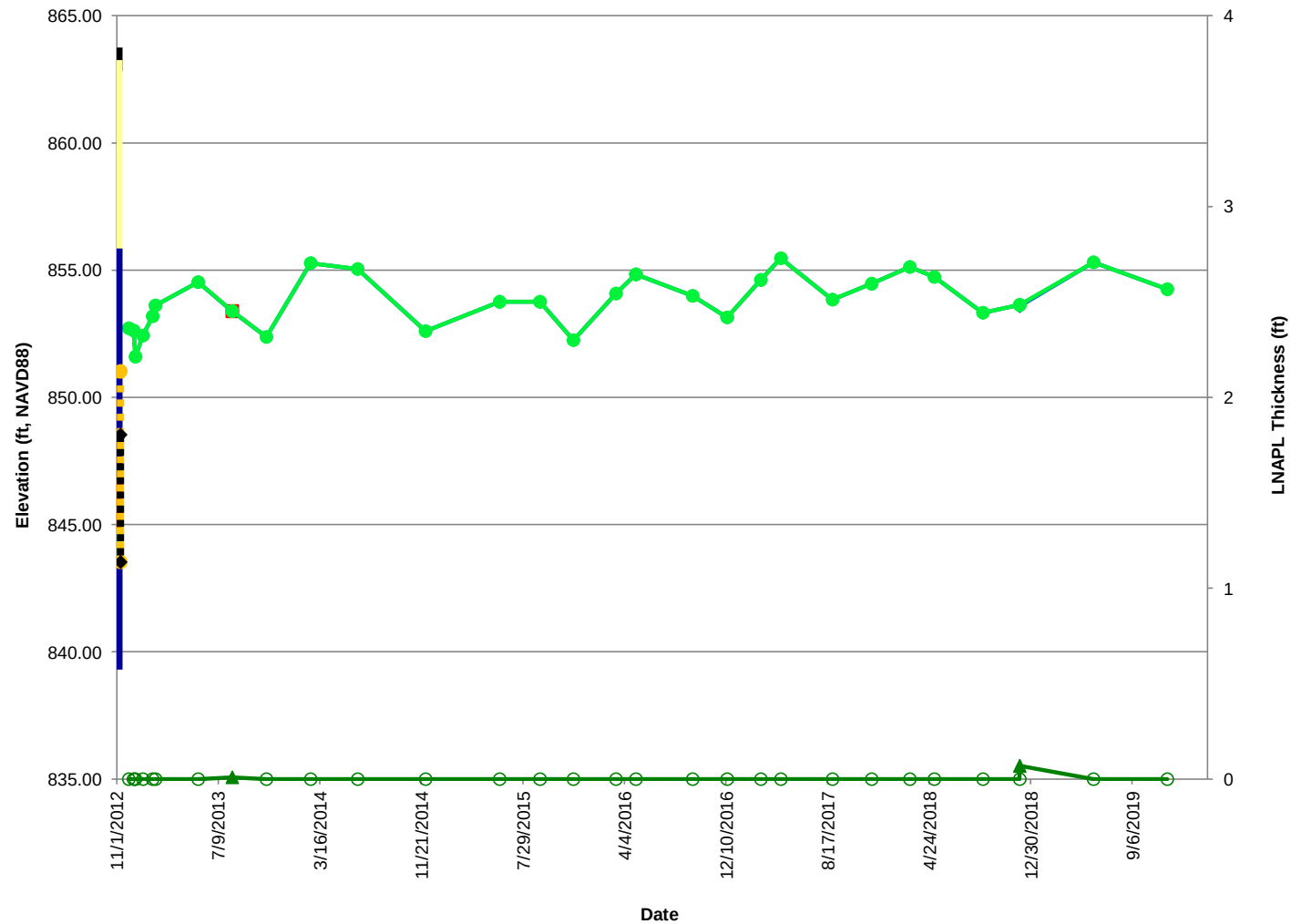
RACER Lansing  
Lansing, MI

**LMW-12-10 DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and  
built assets

FIGURE

**C**



◆ NAPL-Water or Air-Water Interface    ● Potentiometric Surface    — Concrete  
 — Medium Sand    — Clay    — Sand and Gravel  
 — Silt    ● Filter Pack    ◆ Screened Interval  
 — NAPL Thickness

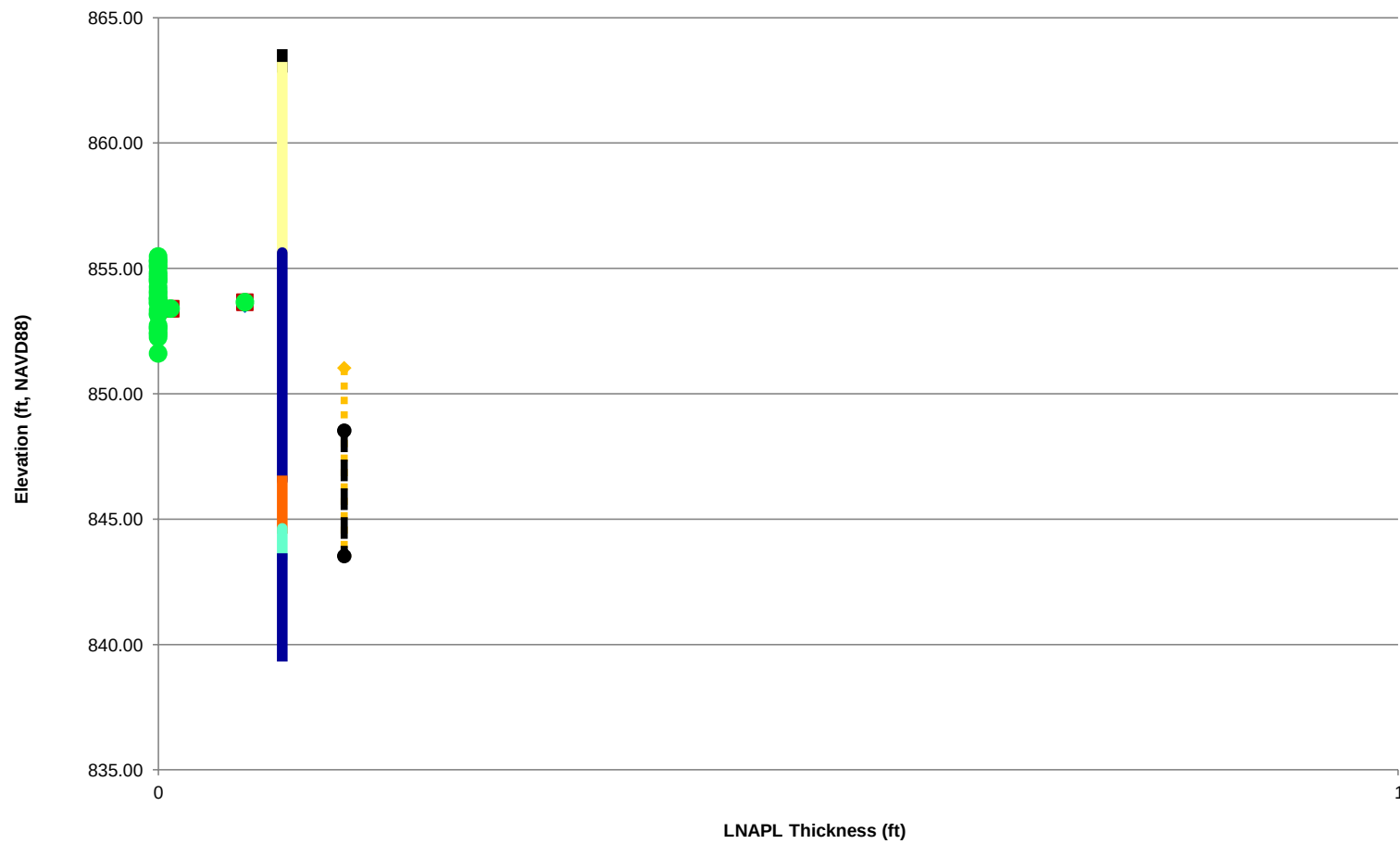
RACER Lansing  
Lansing, MI

### LMW-12-11 LNAPL HYDROGRAPH

ARCADIS  
 Design & Consultancy  
 for natural and  
 built assets

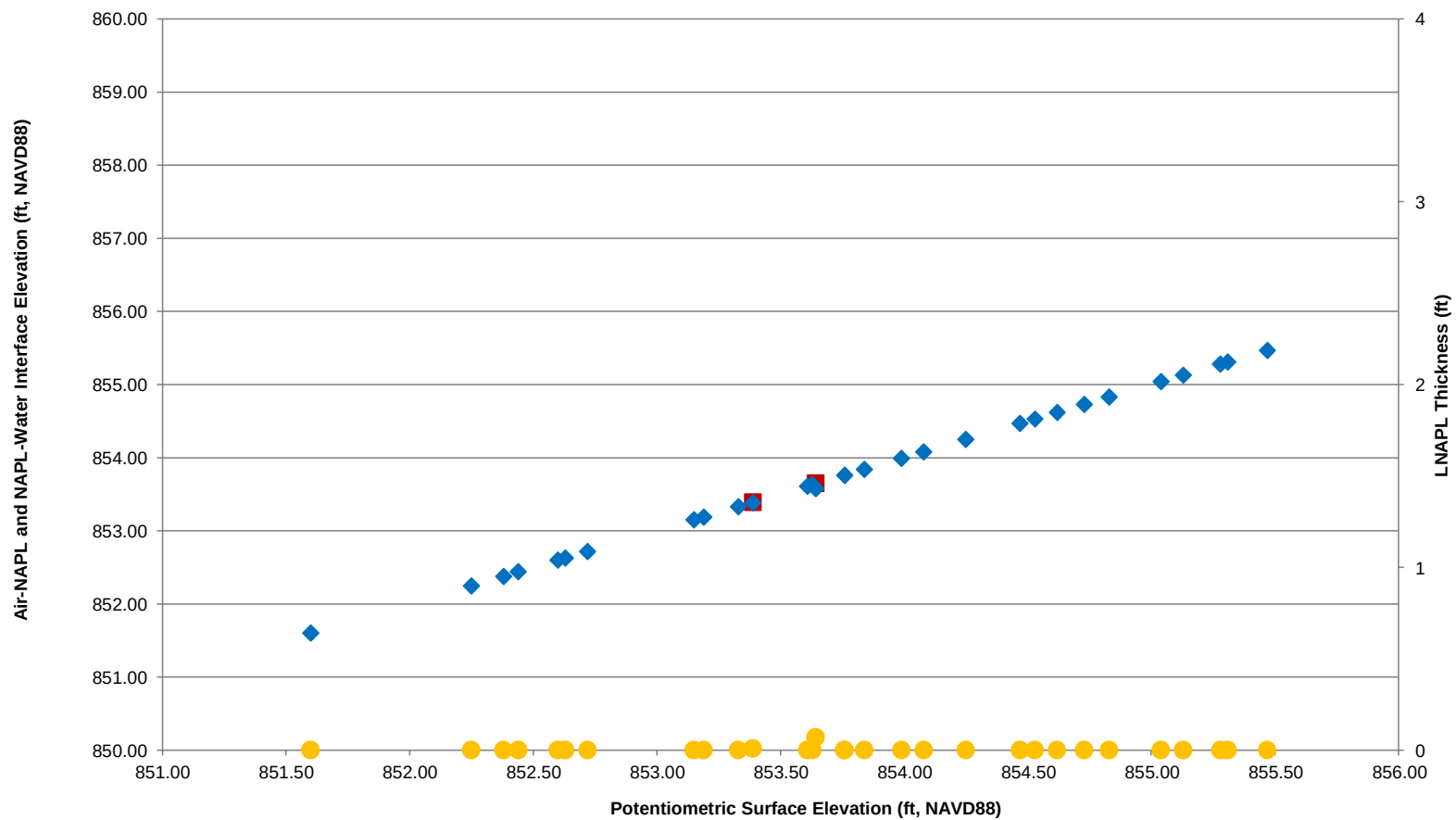
FIGURE

A



- |                      |                                     |                          |
|----------------------|-------------------------------------|--------------------------|
| ■ Air-NAPL Interface | ◆ NAPL-Water or Air-Water Interface | ● Potentiometric Surface |
| — Concrete           | — Medium Sand                       | — Clay                   |
| — Sand and Gravel    | — Silt                              | — Clay                   |
| ◆ ◆ ◆ Filter Pack    | ● — Screened Interval               |                          |

|                                                                                                      |                                                         |
|------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| RACER Lansing<br>Lansing, MI                                                                         |                                                         |
| LMW-12-11 DIAGNOSTIC GAUGE PLOT                                                                      |                                                         |
|  <b>ARCADIS</b> | Design & Consultancy<br>for natural and<br>built assets |
| <b>FIGURE</b><br><b>B</b>                                                                            |                                                         |



■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

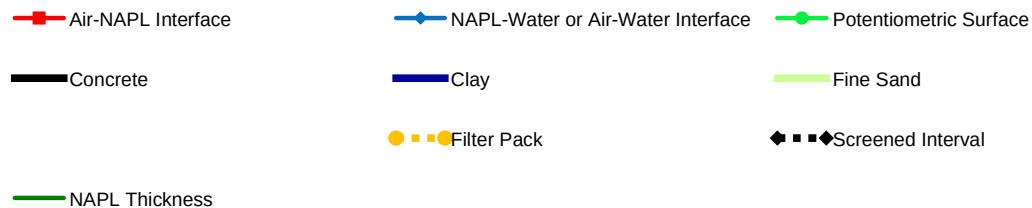
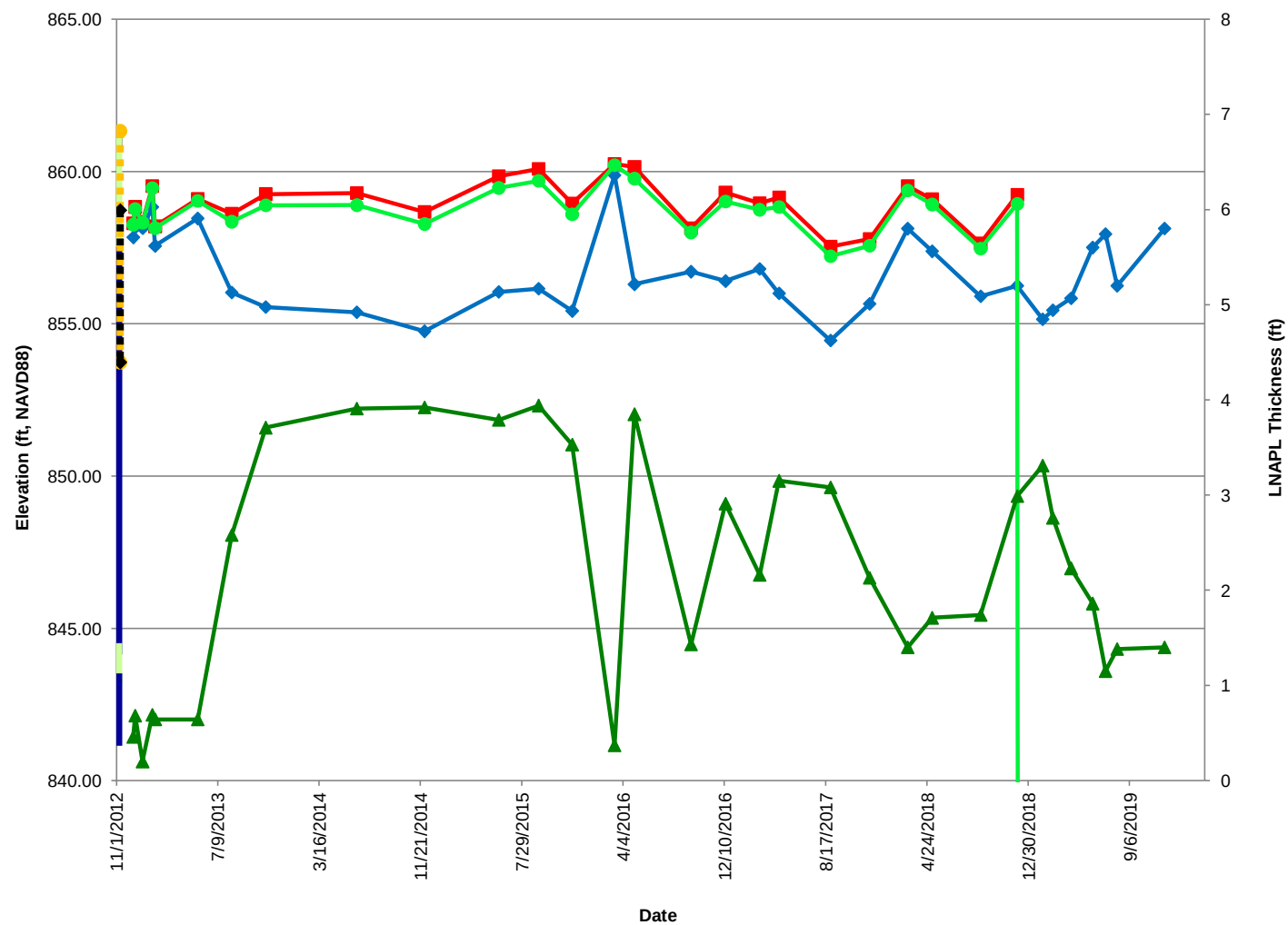
RACER Lansing  
Lansing, MI

**LMW-12-11 DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and  
built assets

FIGURE

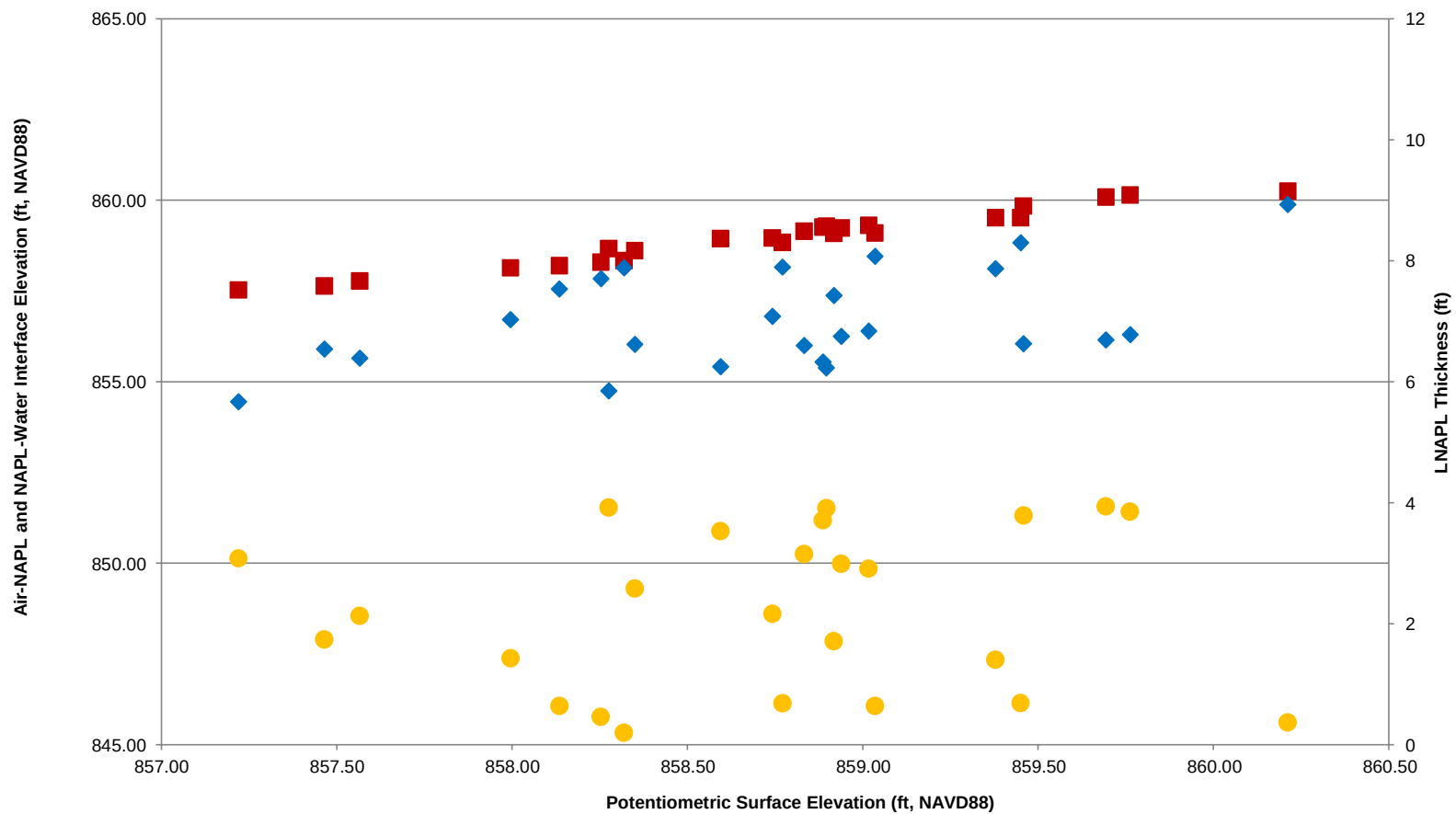
**C**



|                                                                                                                                                                                      |                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                         |                                                                |
| <b>PMW-1 LNAPL HYDROGRAPH</b>                                                                                                                                                        |                                                                |
|  <b>ARCADIS</b><br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><span style="font-size: 2em;"><b>A</b></span> |







■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

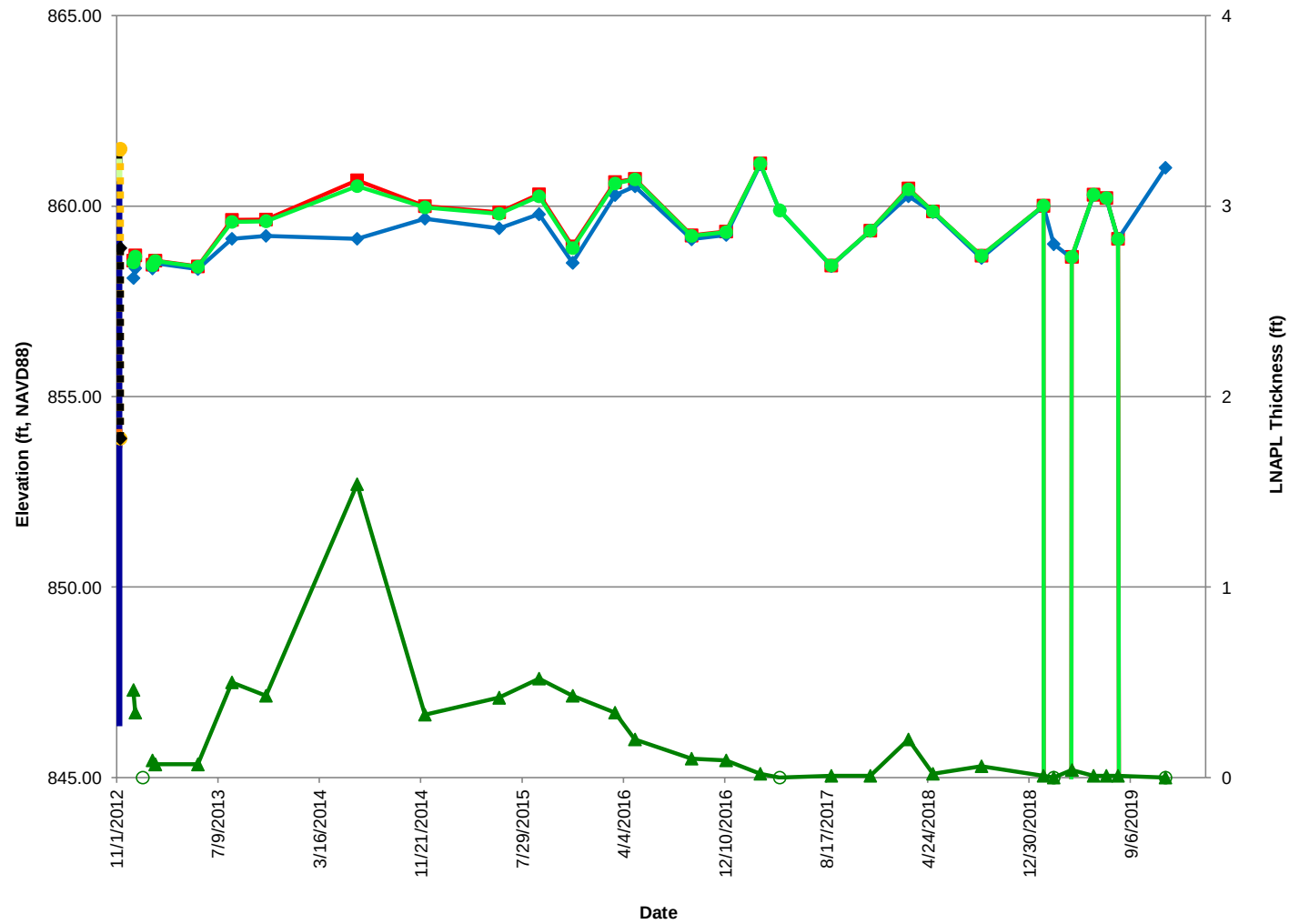
RACER Lansing  
Lansing, MI

PMW-1 DIAGNOSTIC GAUGE PLOT

**ARCADIS** Design & Consultancy  
for natural and  
built assets

FIGURE

**C**



- |                                                            |                                                                       |                                                             |
|------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------------------------------------------|
| <span style="color: red;">■</span> Air-NAPL Interface      | <span style="color: blue;">◆</span> NAPL-Water or Air-Water Interface | <span style="color: green;">●</span> Potentiometric Surface |
| <span style="color: black;">—</span> Concrete              | <span style="color: lightgreen;">—</span> Fine Sand                   | <span style="color: orange;">—</span> Sand and Gravel       |
| <span style="color: blue;">—</span> Clay                   | <span style="color: orange;">●-●-●</span> Filter Pack                 |                                                             |
| <span style="color: black;">◆-◆-◆</span> Screened Interval | <span style="color: green;">—</span> NAPL Thickness                   |                                                             |

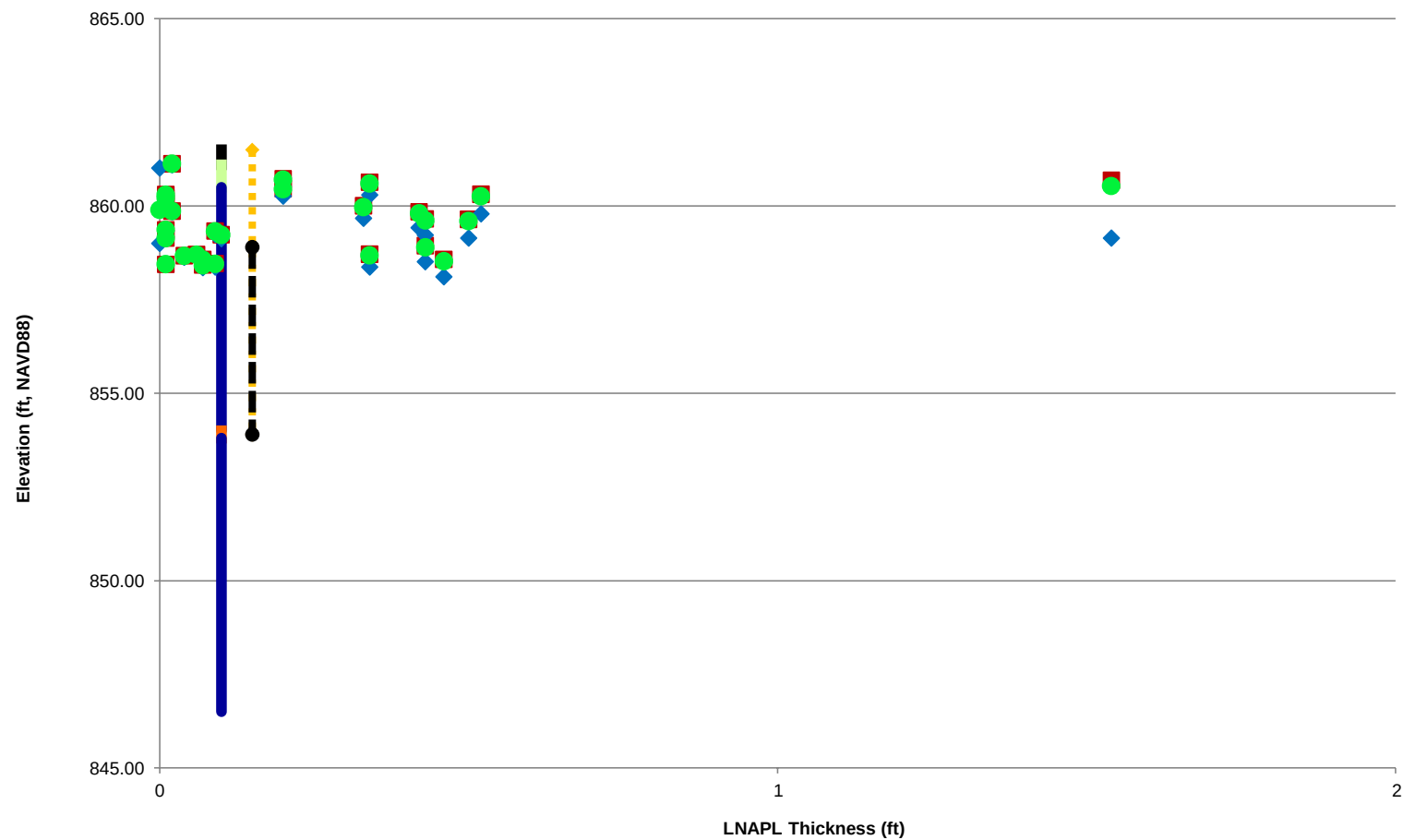
RACER Lansing  
Lansing, MI

### PMW-2 LNAPL HYDROGRAPH

**ARCADIS** Design & Consultancy  
for natural and  
built assets

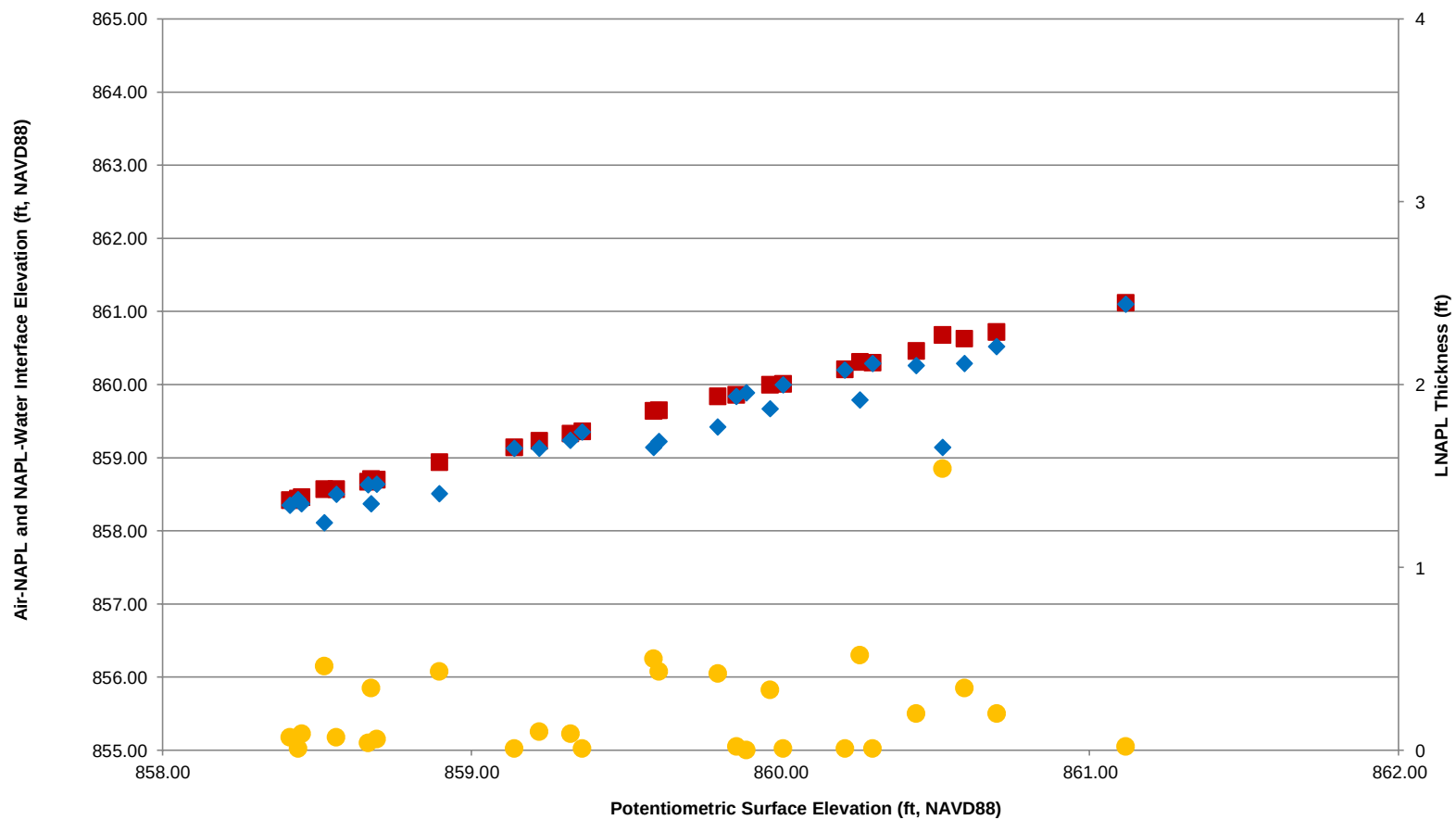
FIGURE

**A**



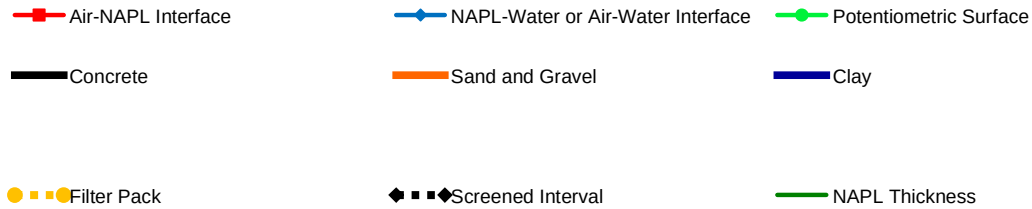
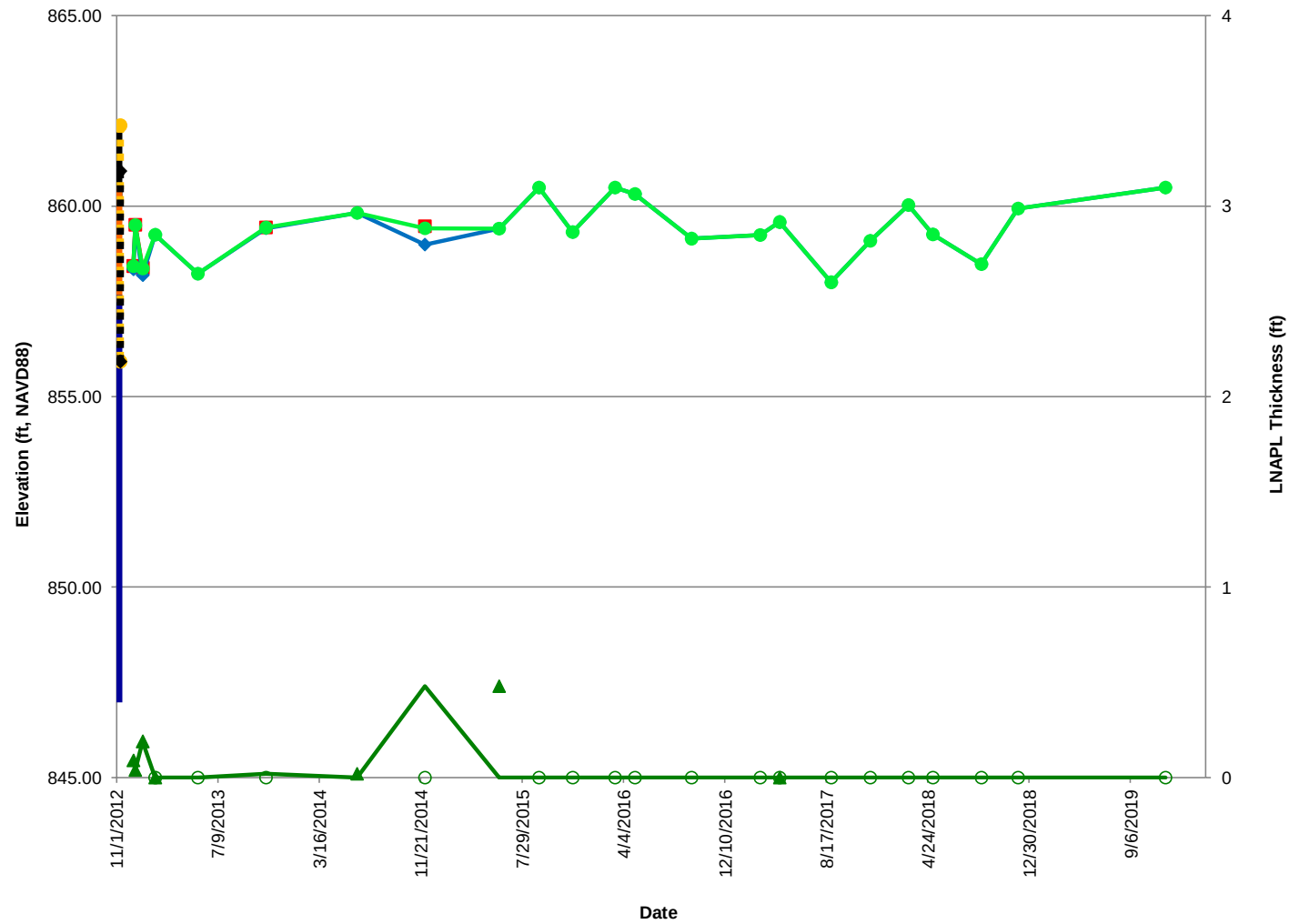
- Air-NAPL Interface
- ◆ NAPL-Water or Air-Water Interface
- Potentiometric Surface
- Concrete
- Fine Sand
- Clay
- Sand and Gravel
- Clay
- ◆ ◆ ◆ ◆ Filter Pack
- — ● Screened Interval

|                                    |                                                                                |
|------------------------------------|--------------------------------------------------------------------------------|
| RACER Lansing<br>Lansing, MI       |                                                                                |
| <b>PMW-2 DIAGNOSTIC GAUGE PLOT</b> |                                                                                |
|                                    | <b>FIGURE</b><br><br><span style="font-size: 2em; font-weight: bold;">B</span> |

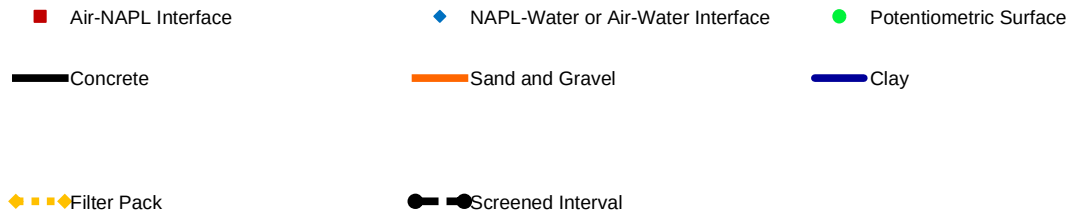
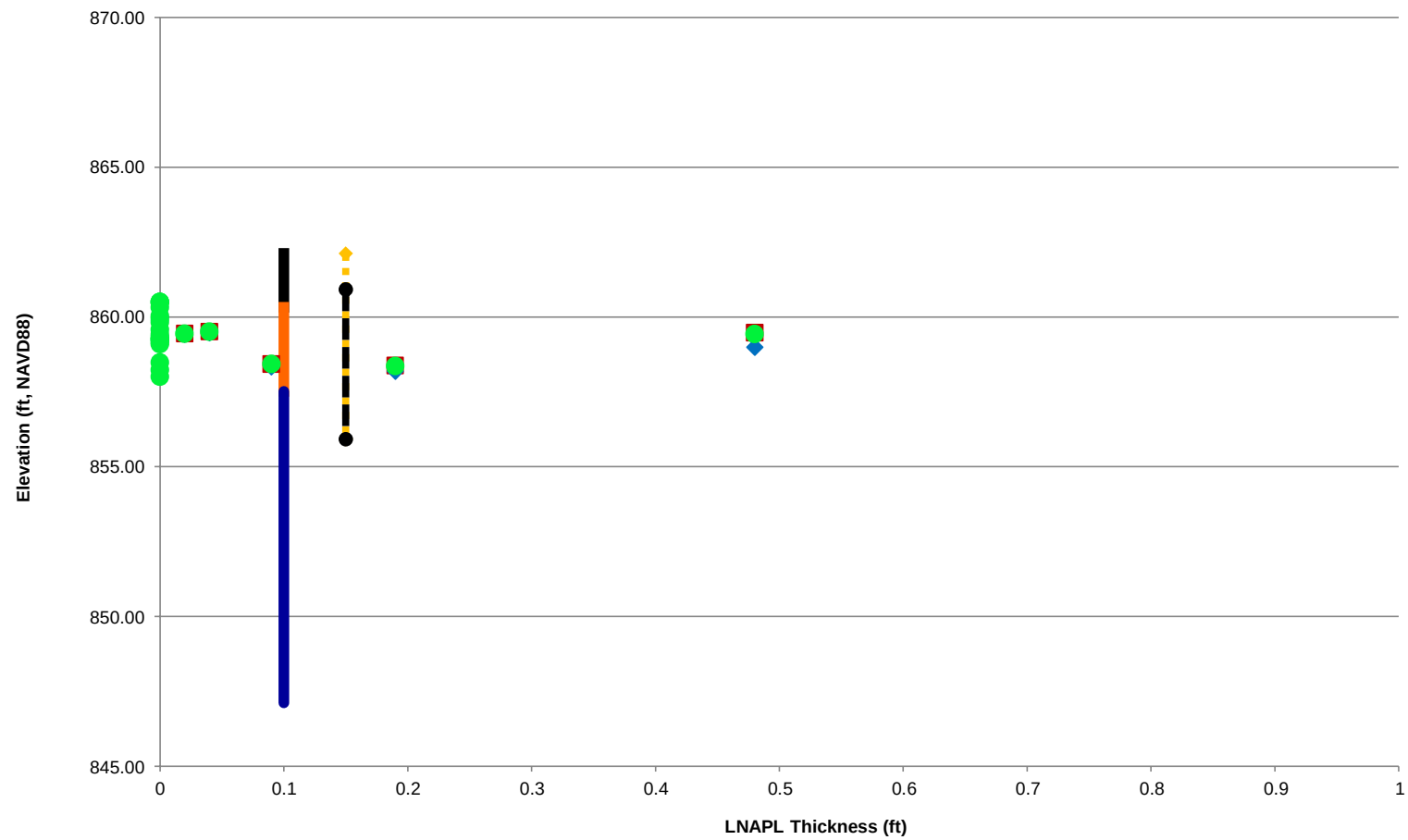


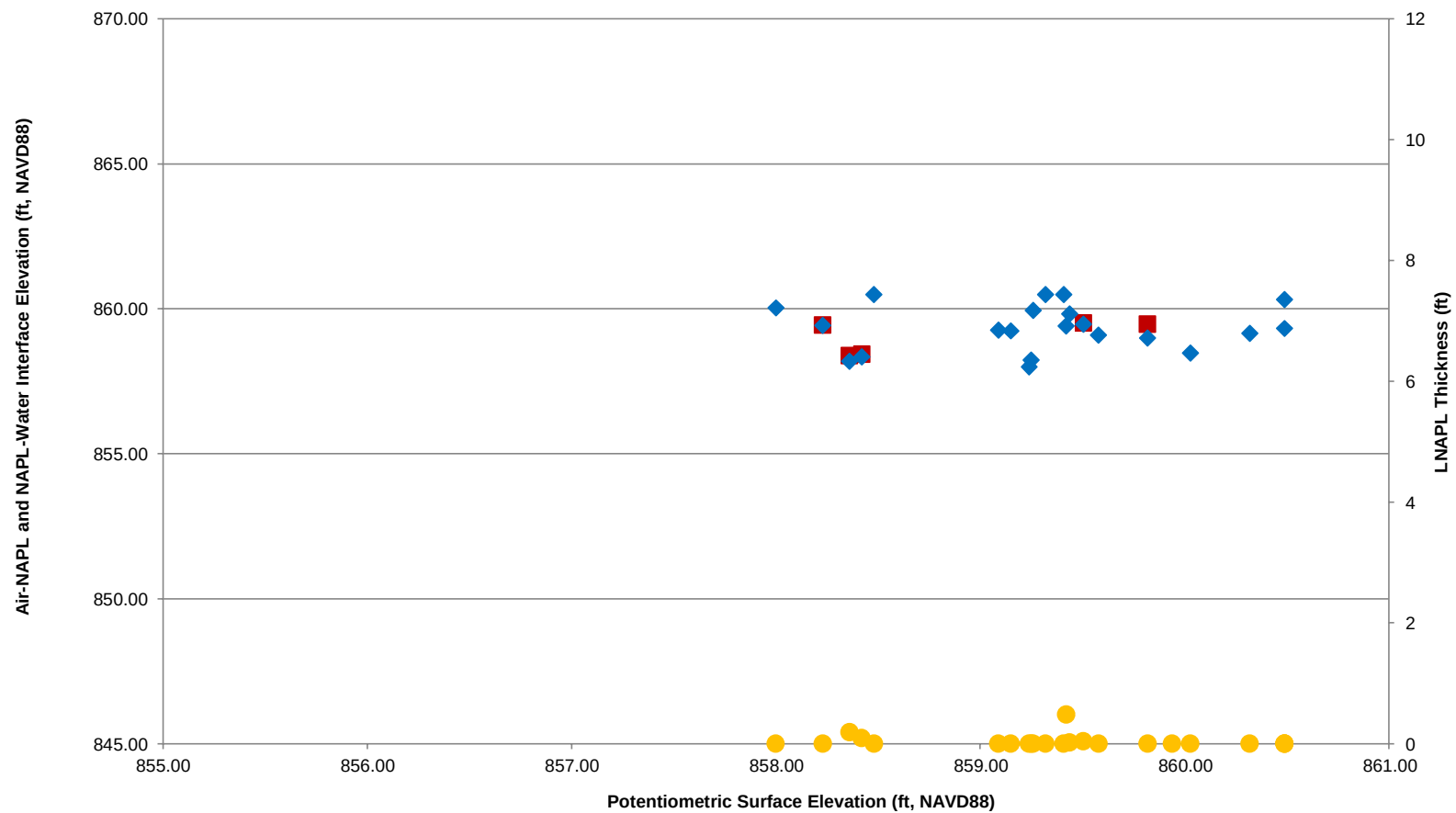
■ Air-NAPL Interface
 ◆ NAPL-Water or Air-Water Interface
 ● NAPL Thickness

|                                                                                                                                                                               |                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                  |                           |
| <b>PMW-2 DIAGNOSTIC GAUGE PLOT</b>                                                                                                                                            |                           |
|  ARCADIS<br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><b>C</b> |



|                                                                                                                                                                               |                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                  |                    |
| PMW-3 LNAPL HYDROGRAPH                                                                                                                                                        |                    |
|  ARCADIS<br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | FIGURE<br><b>A</b> |





■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

RACER Lansing  
Lansing, MI

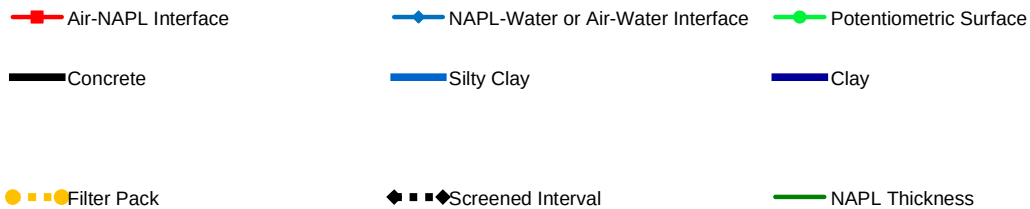
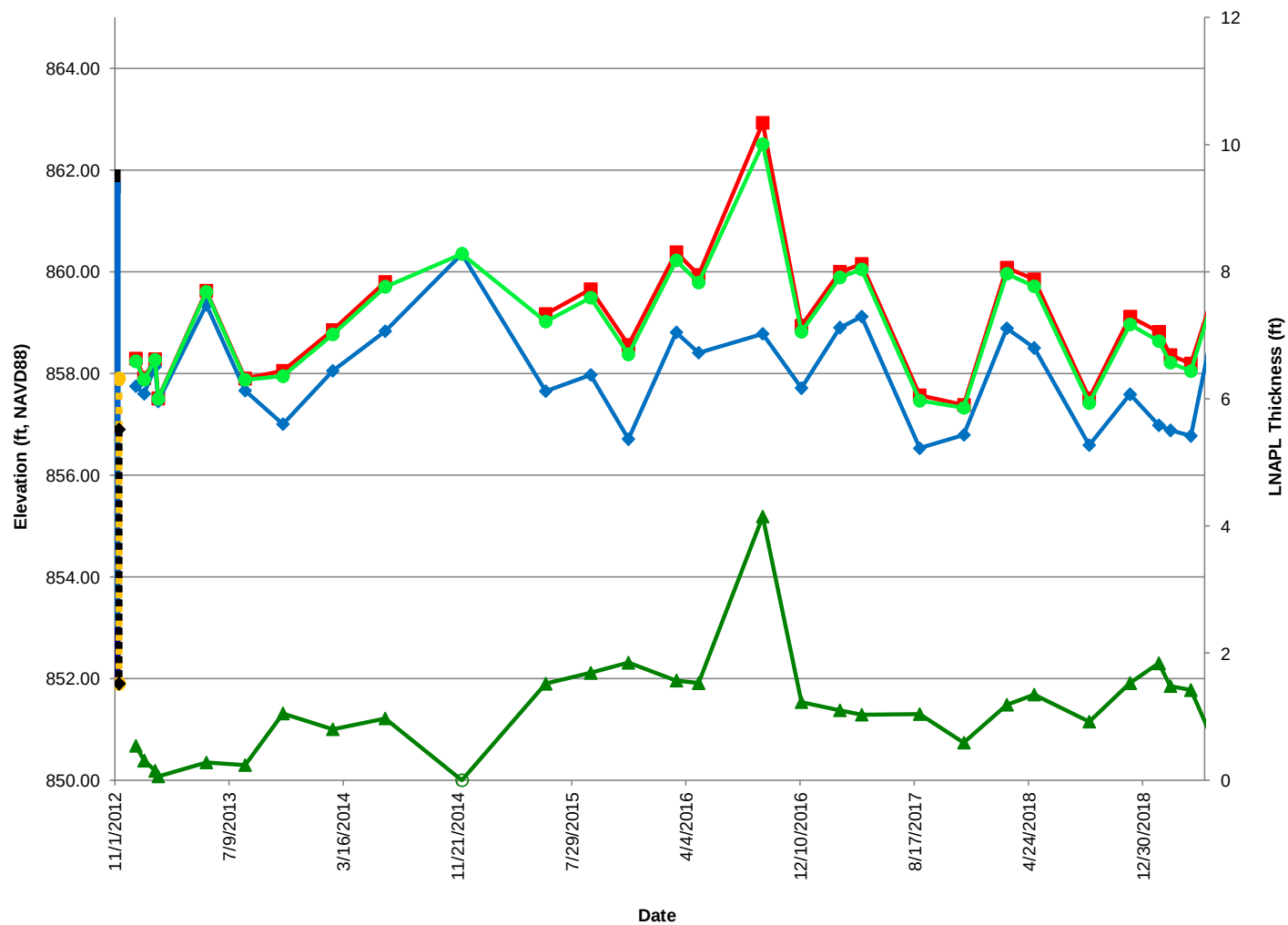
**PMW-3 DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and  
built assets

FIGURE

**C**





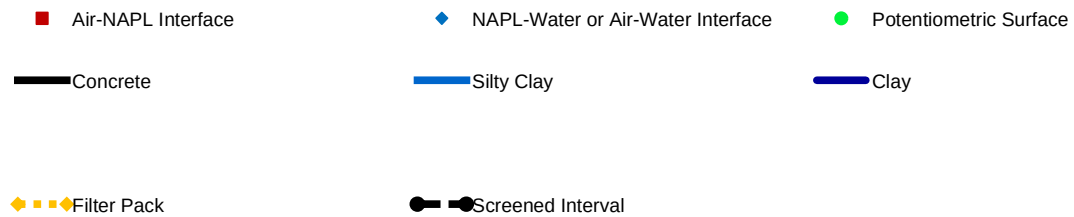
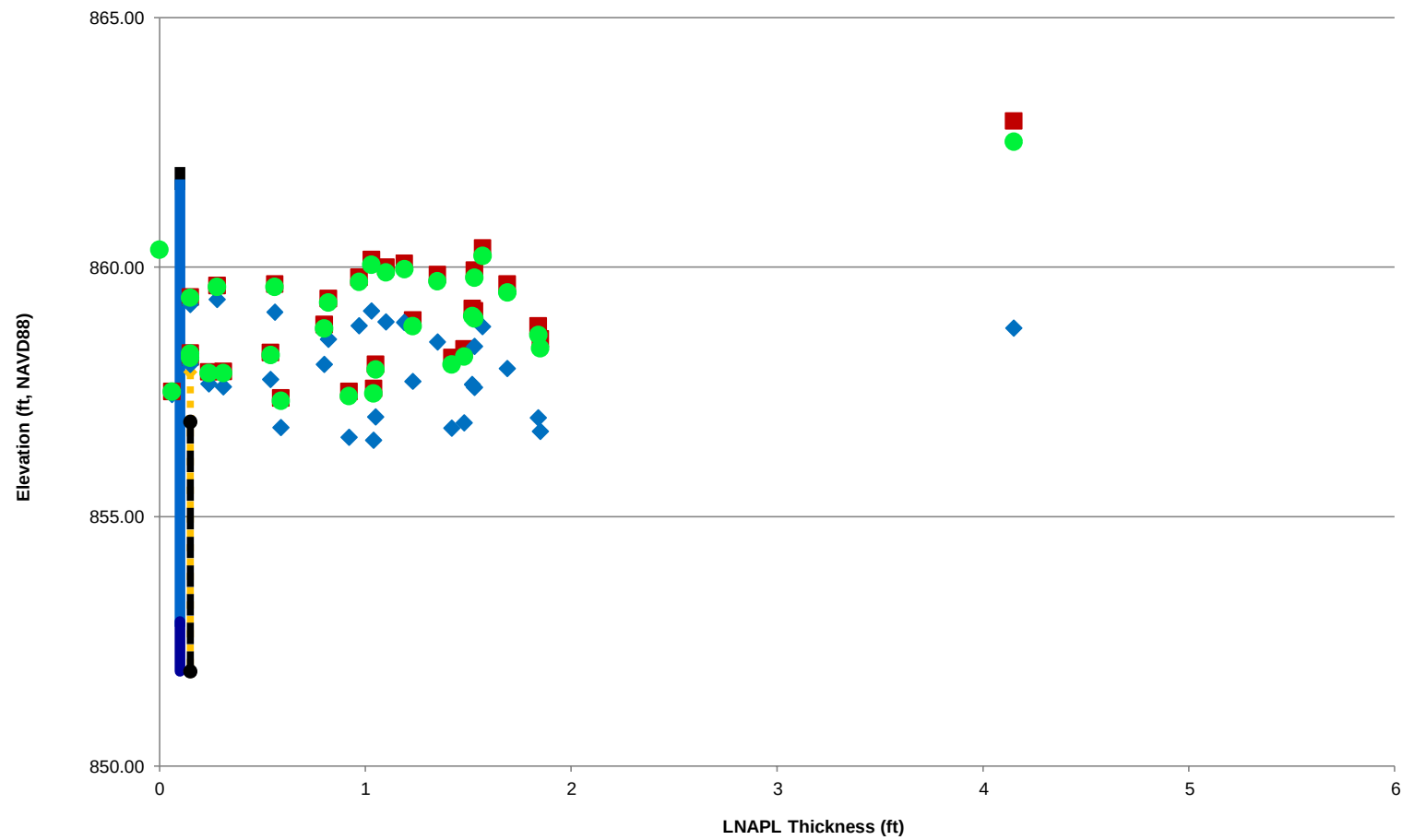
RACER Lansing  
Lansing, MI

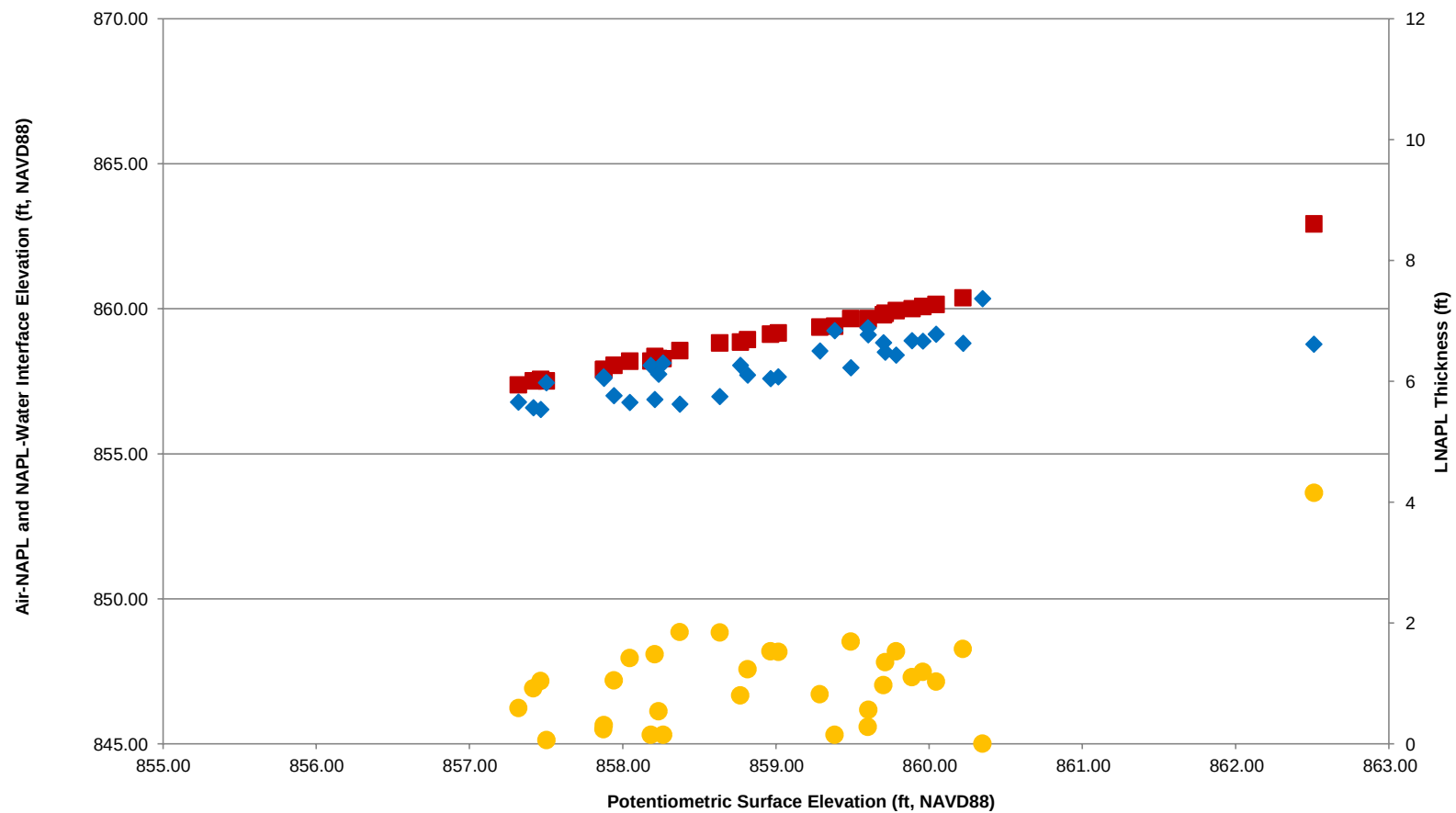
### P2-SB-37 LNAPL HYDROGRAPH



FIGURE

**A**





■ Air-NAPL Interface
 ◆ NAPL-Water or Air-Water Interface
 ● NAPL Thickness

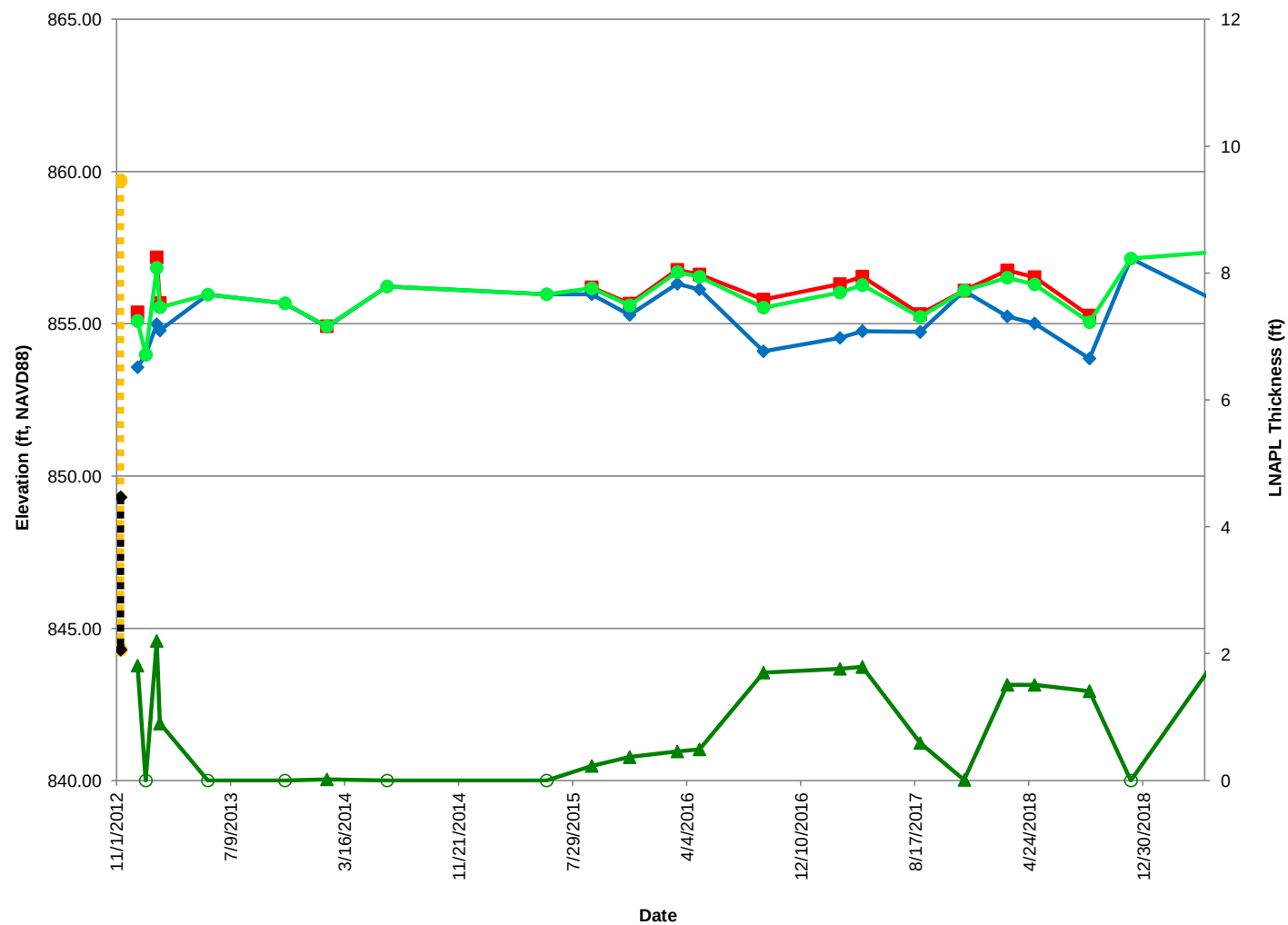
RACER Lansing  
Lansing, MI

**P2-SB-37 DIAGNOSTIC GAUGE PLOT**


 ARCADIS  
 Design & Consultancy  
 for natural and  
 built assets

FIGURE

**C**



Series2

NAPL-Water or Air-Water Interface

Potentiometric Surface

Filter Pack

Screened Interval

NAPL Thickness

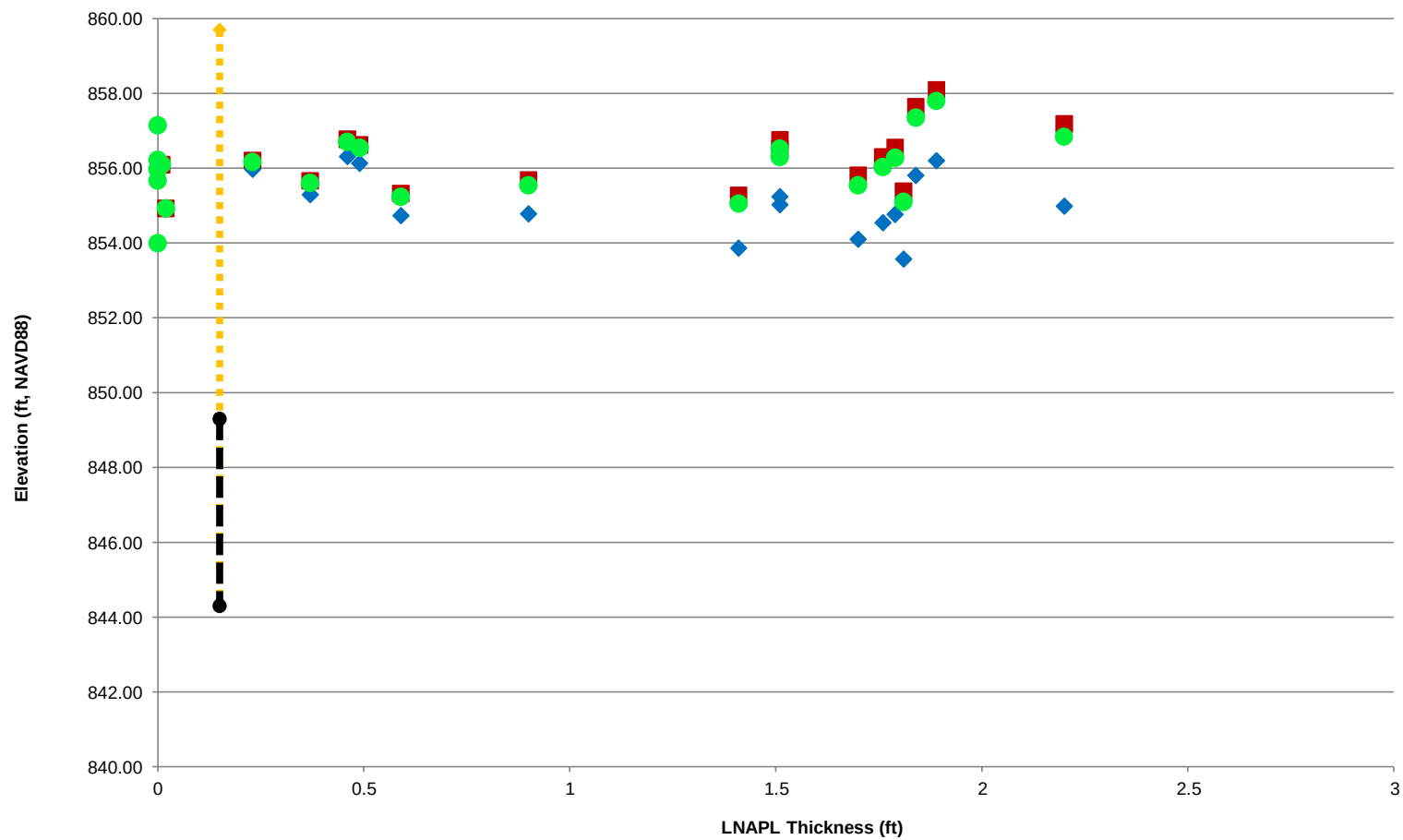
RACER Lansing  
Lansing, MI

UNK-14 LNAPL HYDROGRAPH

ARCADIS Design & Consultancy  
for natural and  
built assets

FIGURE

A



■ Air-NAPL Interface
 ◆ NAPL-Water or Air-Water Interface
 ● Potentiometric Surface

◆ Filter Pack

● Screened Interval

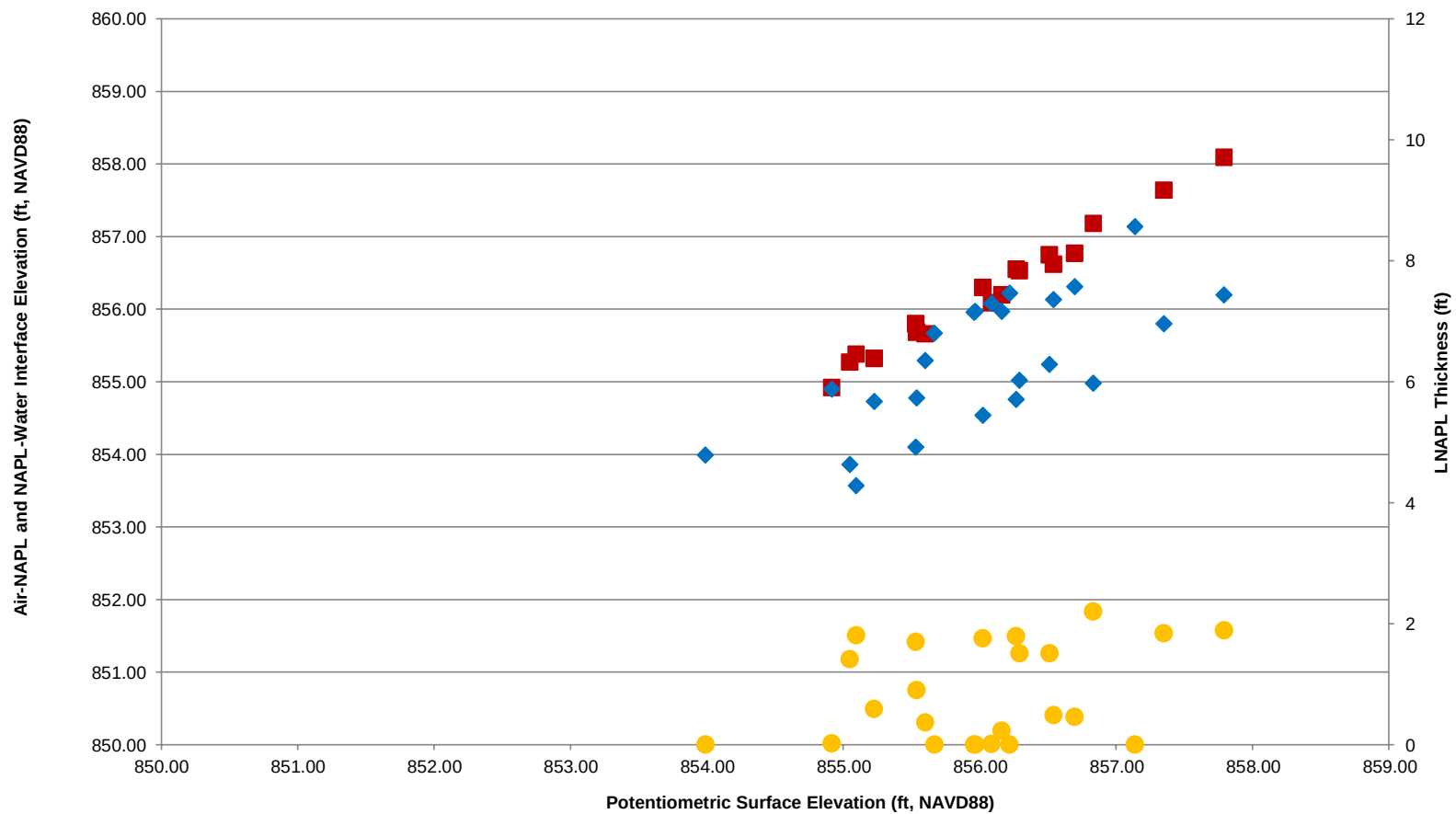
RACER Lansing  
Lansing, MI

UNK-14 DIAGNOSTIC GAUGE PLOT


 Design & Consultancy  
for natural and  
built assets

FIGURE

B



■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

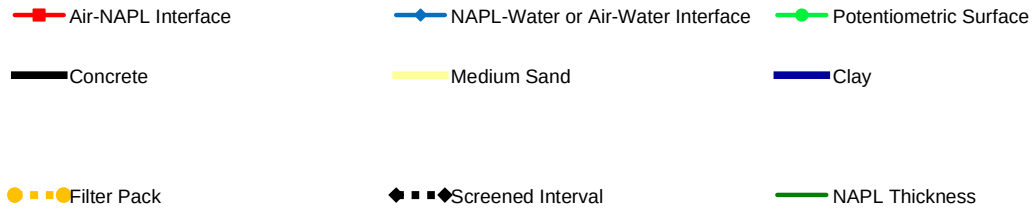
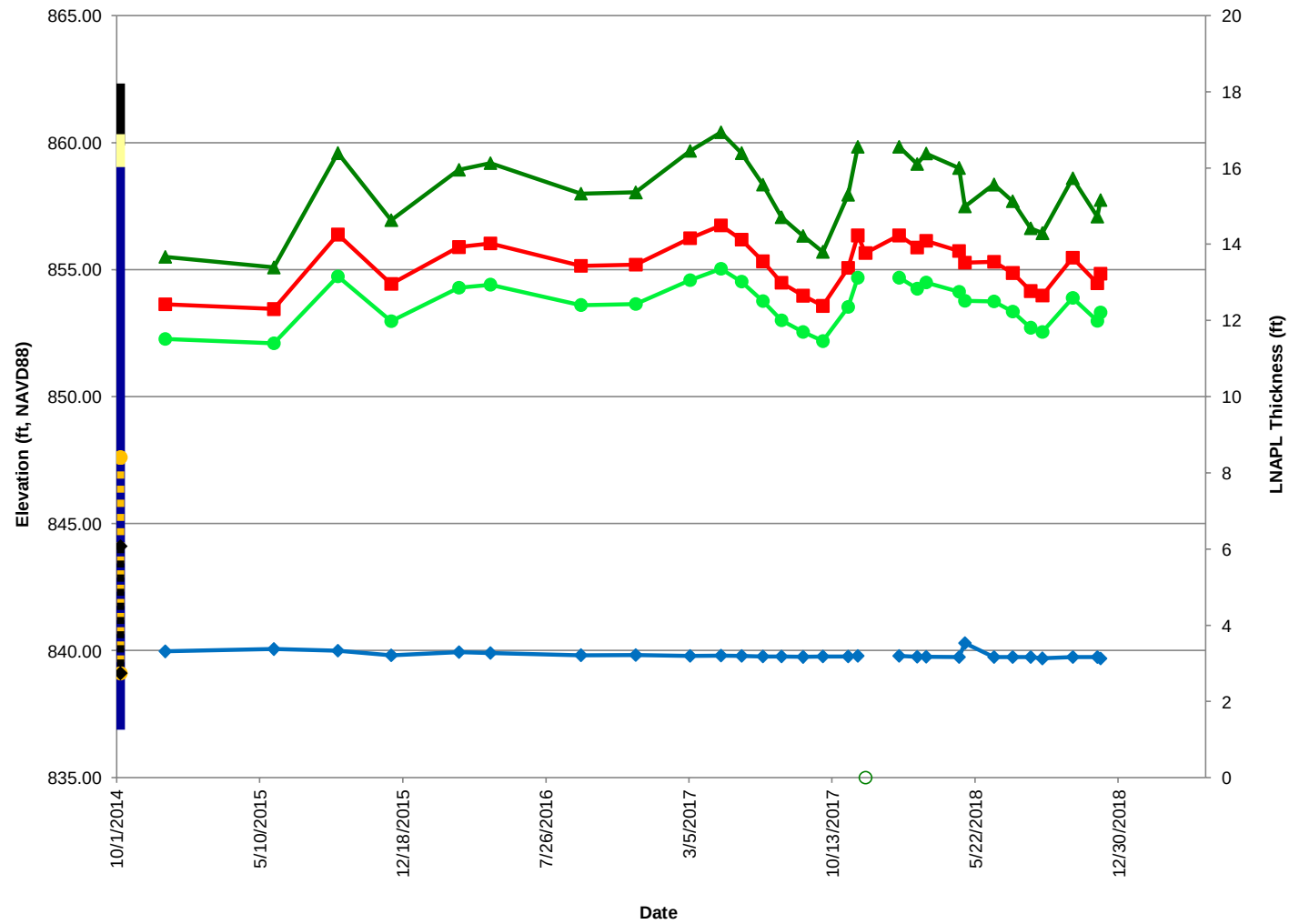
RACER Lansing  
Lansing, MI

**UNK-14 DIAGNOSTIC GAUGE PLOT**

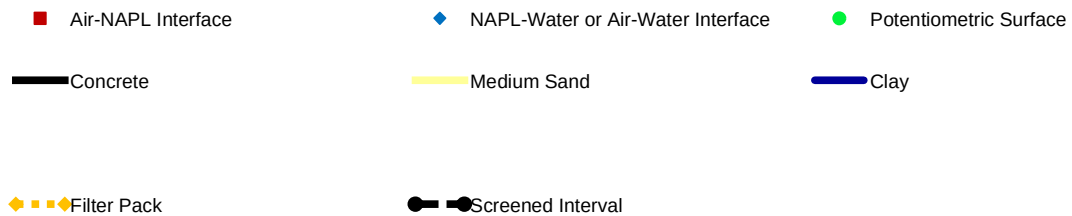
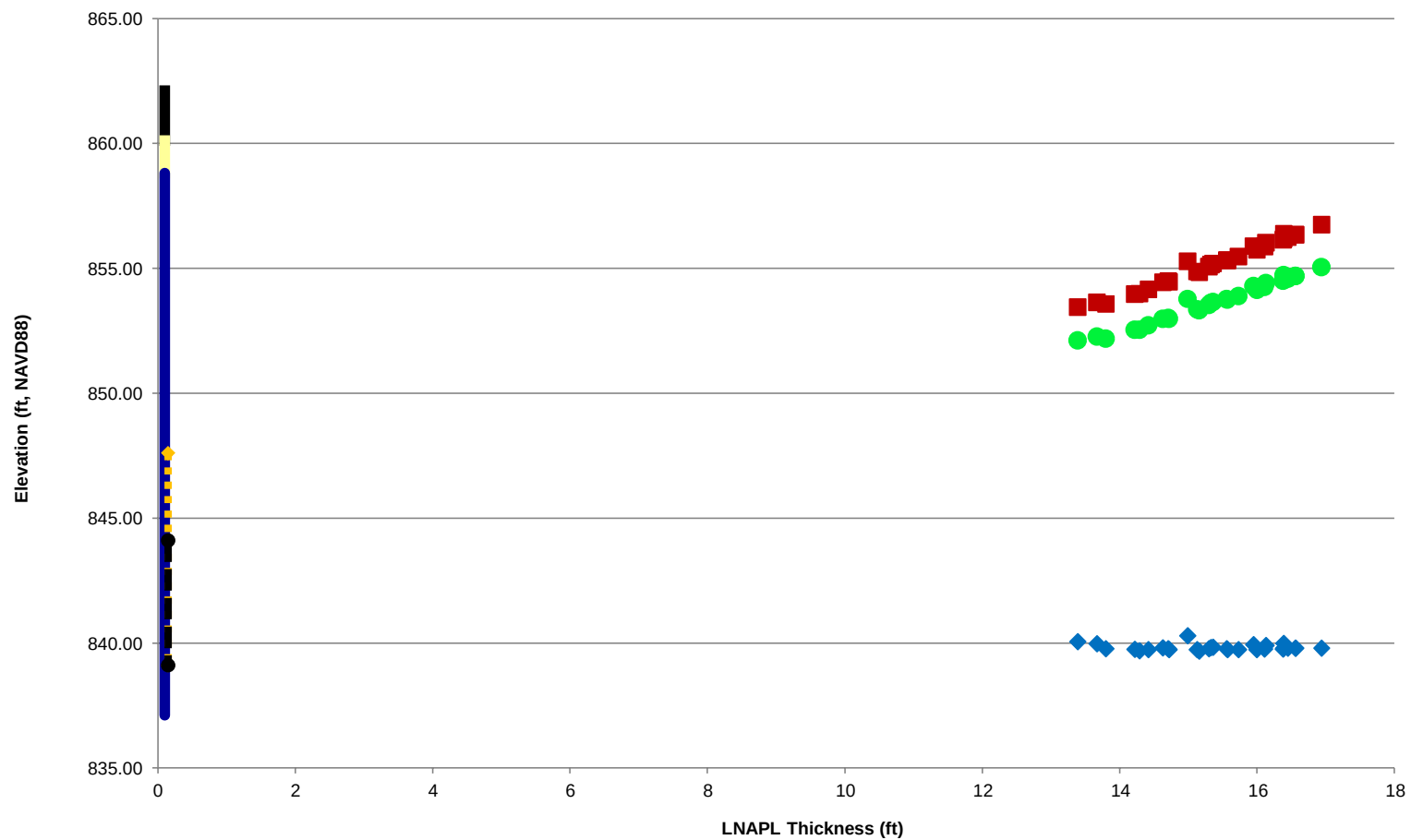
**ARCADIS** Design & Consultancy  
for natural and  
built assets

FIGURE

**C**

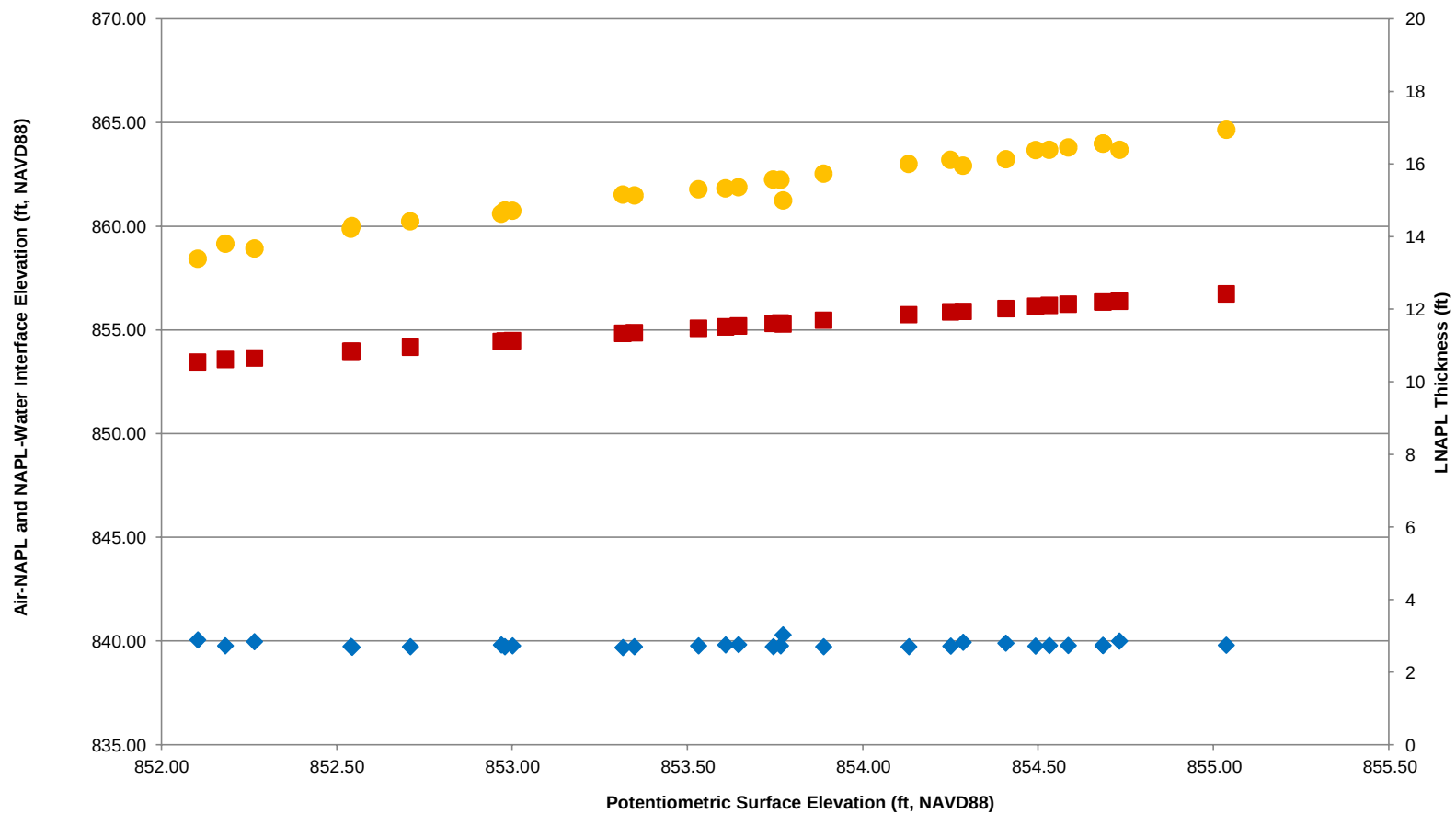


|                                                                                         |                    |
|-----------------------------------------------------------------------------------------|--------------------|
| RACER Lansing<br>Lansing, MI                                                            |                    |
| LMW-14-12D LNAPL HYDROGRAPH                                                             |                    |
| ARCADIS<br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | FIGURE<br><b>A</b> |



|                                                                                                                                                                               |                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                  |                           |
| LMW-14-12D DIAGNOSTIC GAUGE PLOT                                                                                                                                              |                           |
|  ARCADIS<br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><b>B</b> |





■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

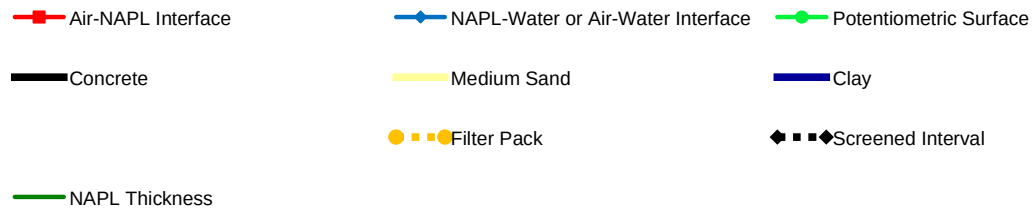
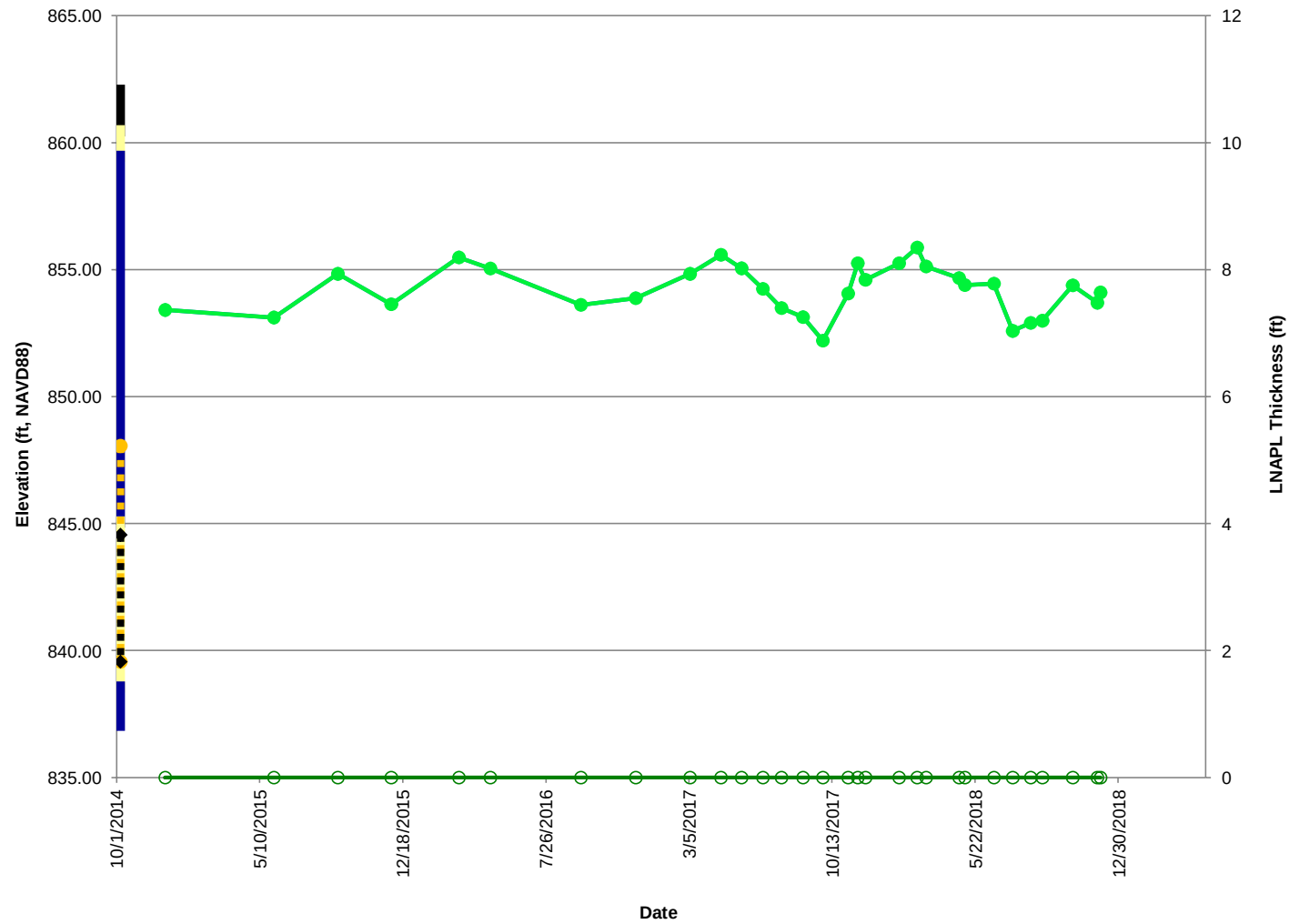
RACER Lansing  
Lansing, MI

LMW-14-12D DIAGNOSTIC GAUGE PLOT

**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE

**C**



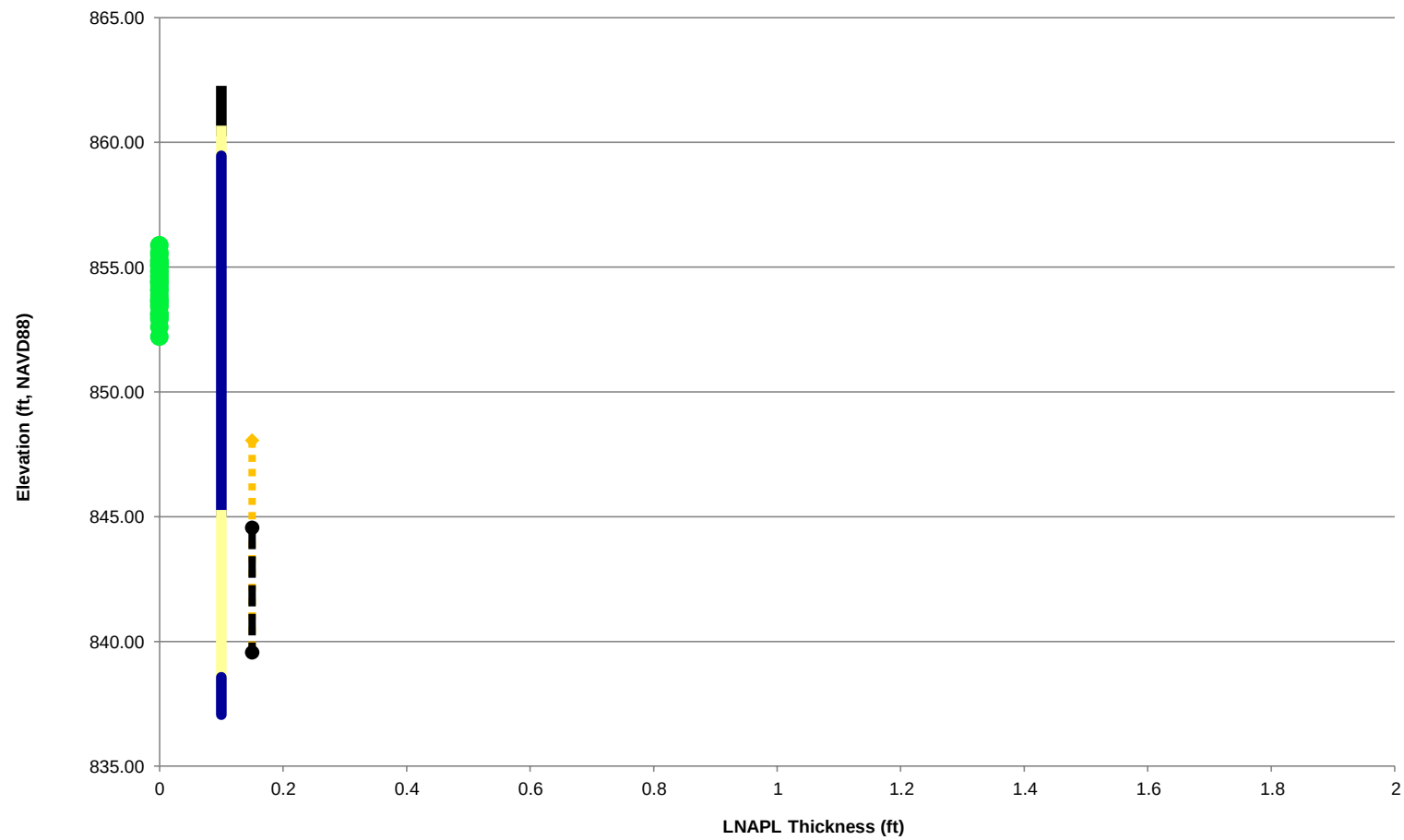
RACER Lansing  
Lansing, MI

# LMW-14-13D LNAPL HYDROGRAPH

**ARCADIS** Design & Consultancy  
for natural and built assets

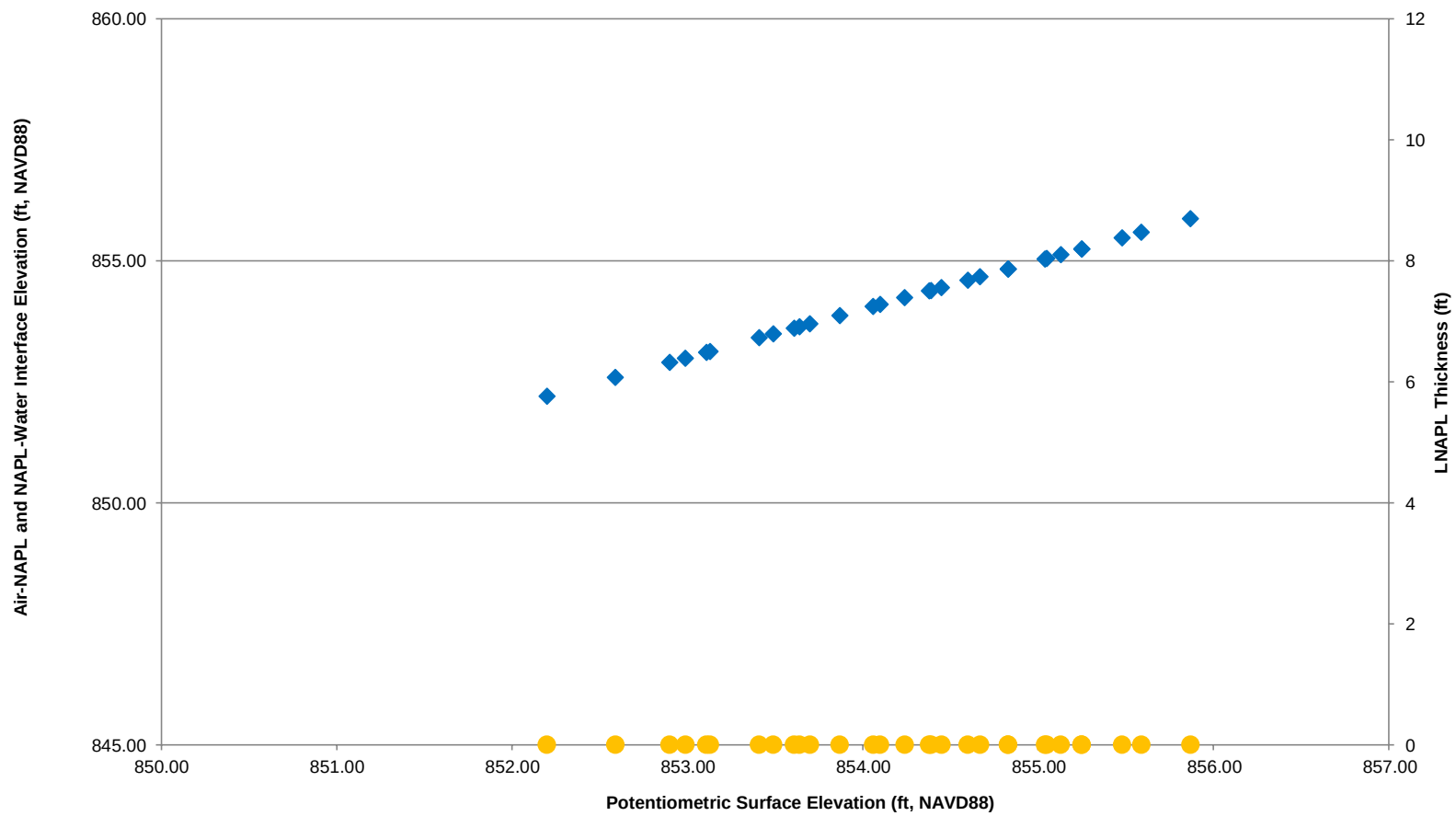
FIGURE

**A**



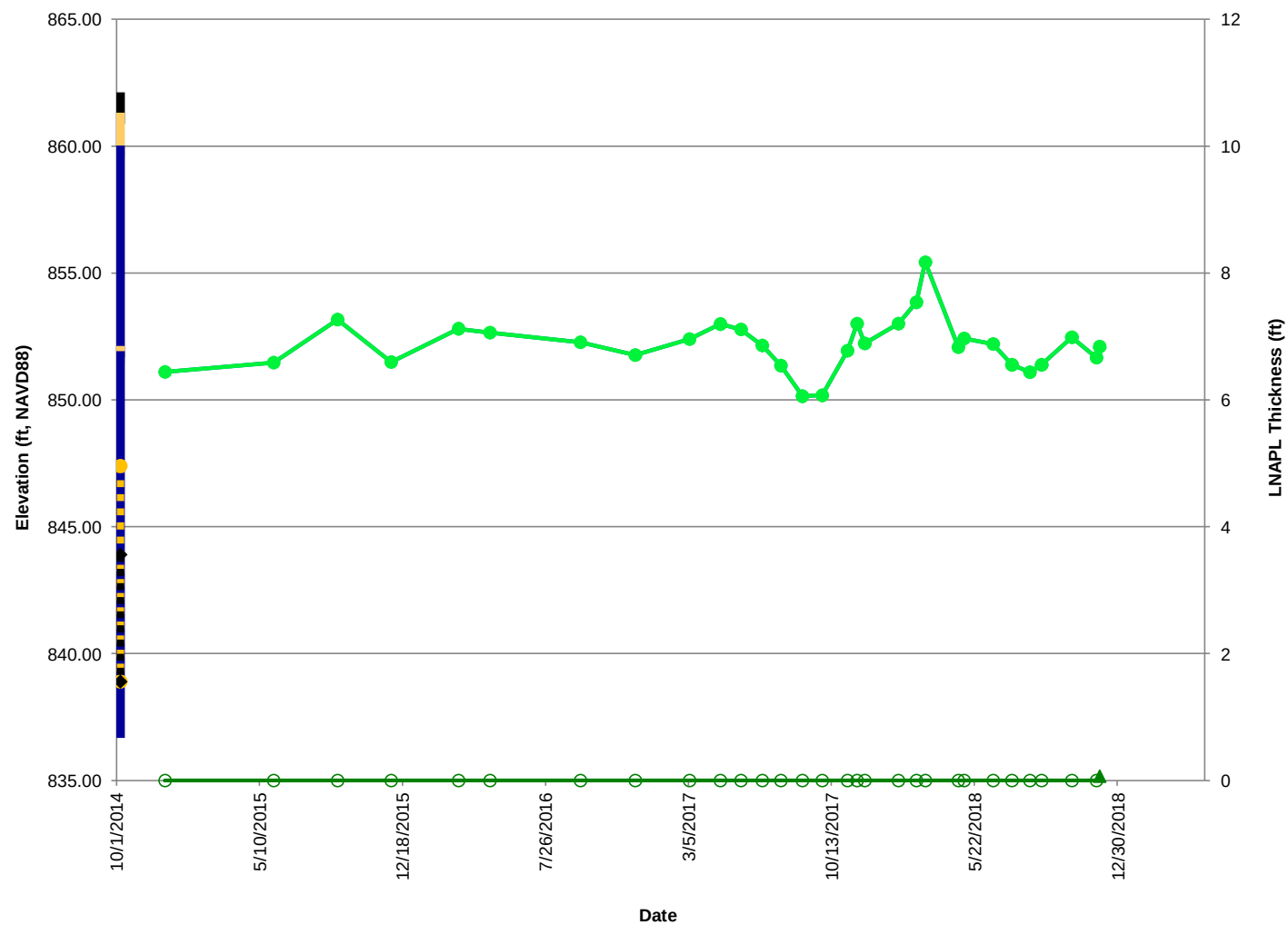
- Air-NAPL Interface
 ◆ NAPL-Water or Air-Water Interface
● Potentiometric Surface
- Concrete
 — Medium Sand
— Clay
- Medium Sand
 — Clay
- ◆ Filter Pack
 ● Screened Interval

|                                                                                                                        |                                                                                  |
|------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| RACER Lansing<br>Lansing, MI                                                                                           |                                                                                  |
| <b>LMW-14-13D DIAGNOSTIC GAUGE PLOT</b>                                                                                |                                                                                  |
| <span style="font-size: 0.8em; margin-left: 5px;">Design &amp; Consultancy<br/>for natural and<br/>built assets</span> | <b>FIGURE</b><br><br><span style="font-size: 1.5em; font-weight: bold;">B</span> |



■ Air-NAPL Interface      ◆ NAPL-Water or Air-Water Interface      ● NAPL Thickness

|                                                                                                                                                                    |                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                       |                    |
| LMW-14-13D DIAGNOSTIC GAUGE PLOT                                                                                                                                   |                    |
|  <small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | FIGURE<br><b>C</b> |



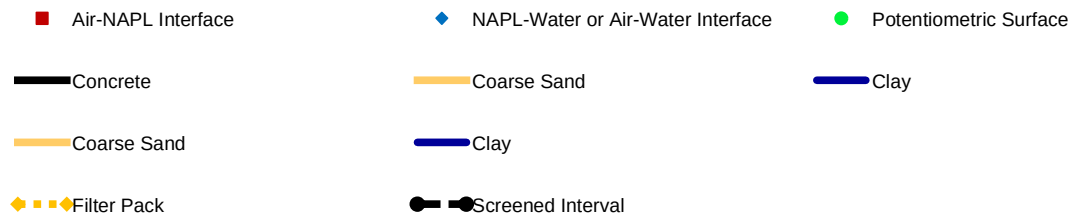
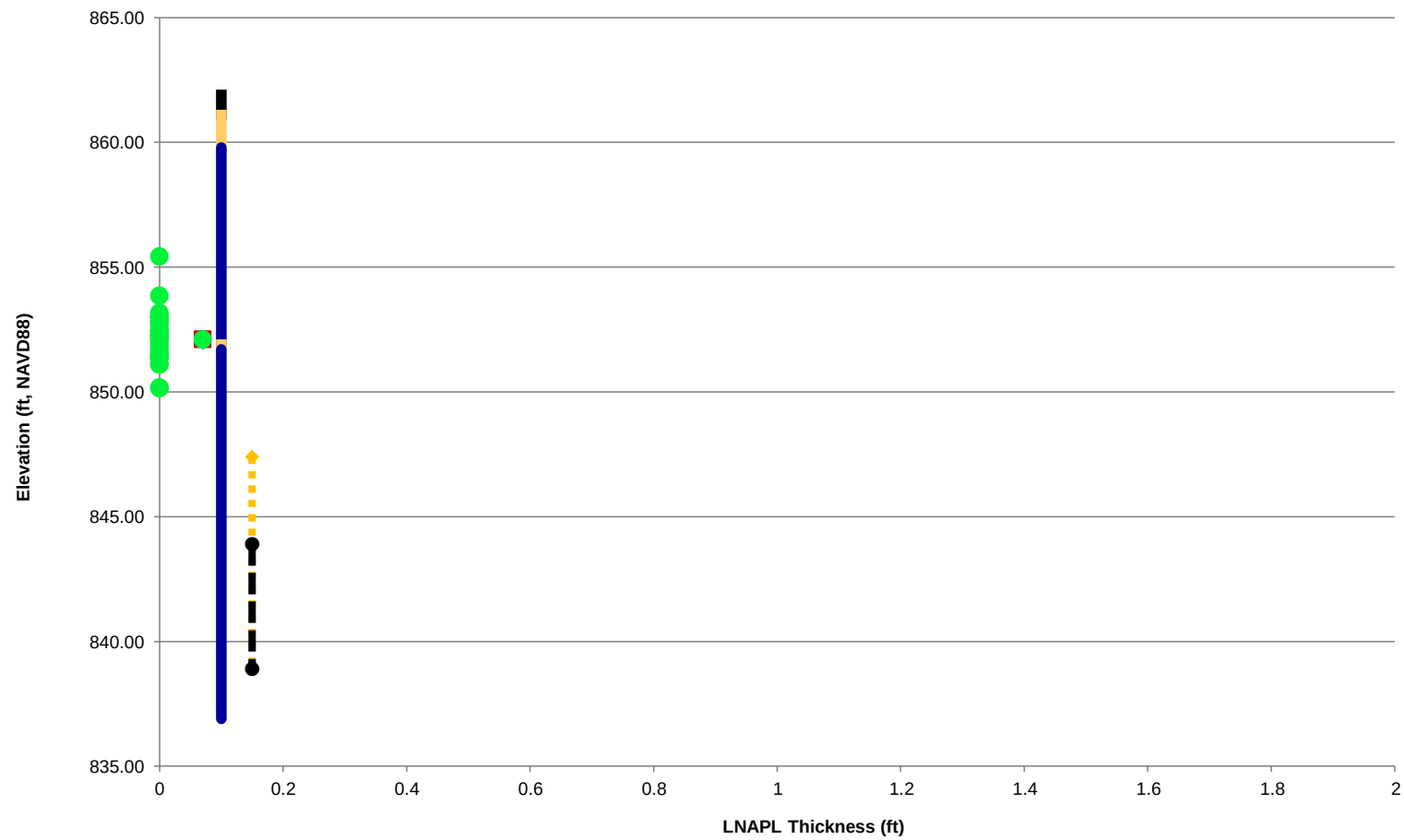
RACER Lansing  
Lansing, MI

# LMW-14-14D LNAPL HYDROGRAPH

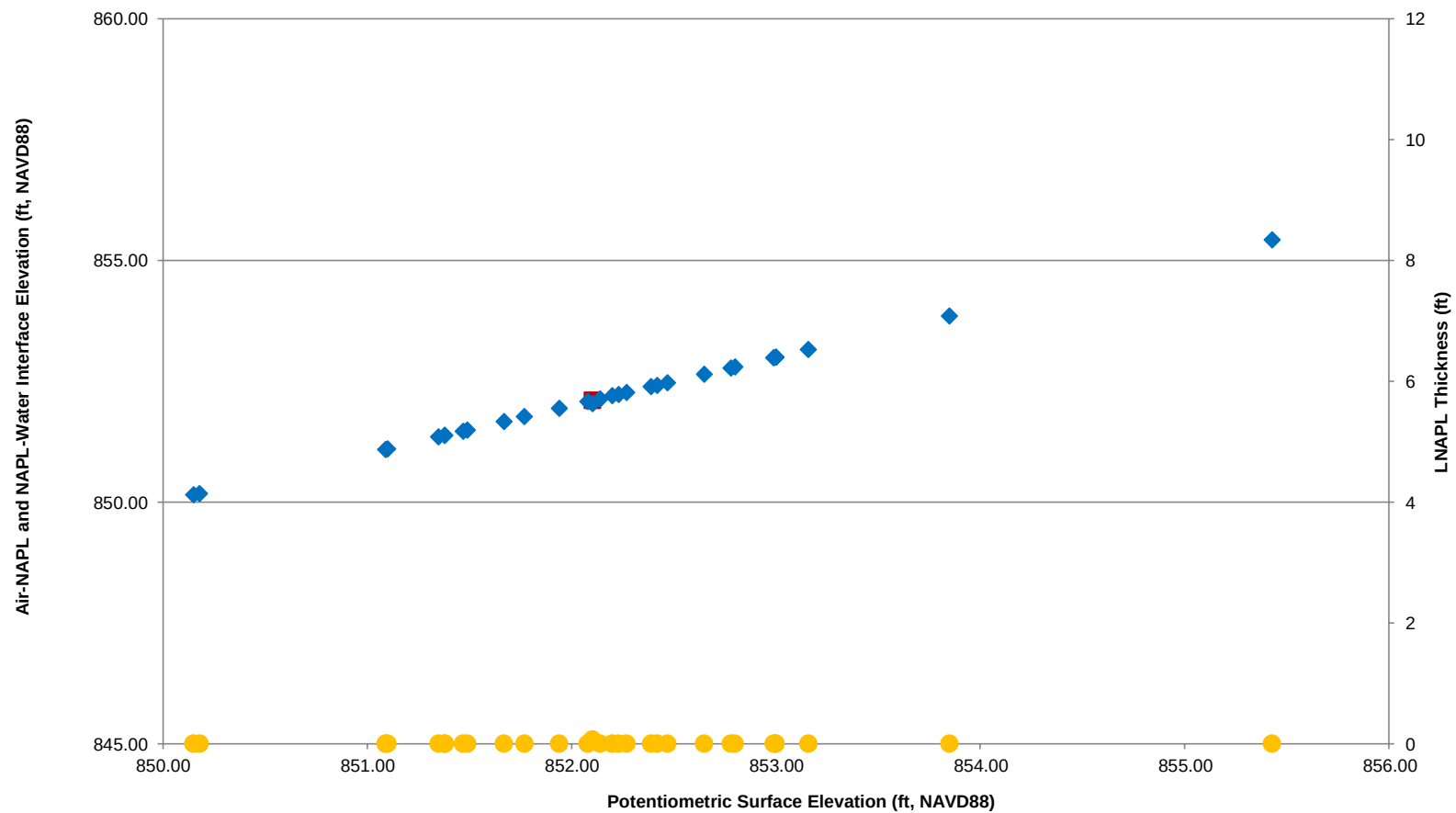
**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE

**A**

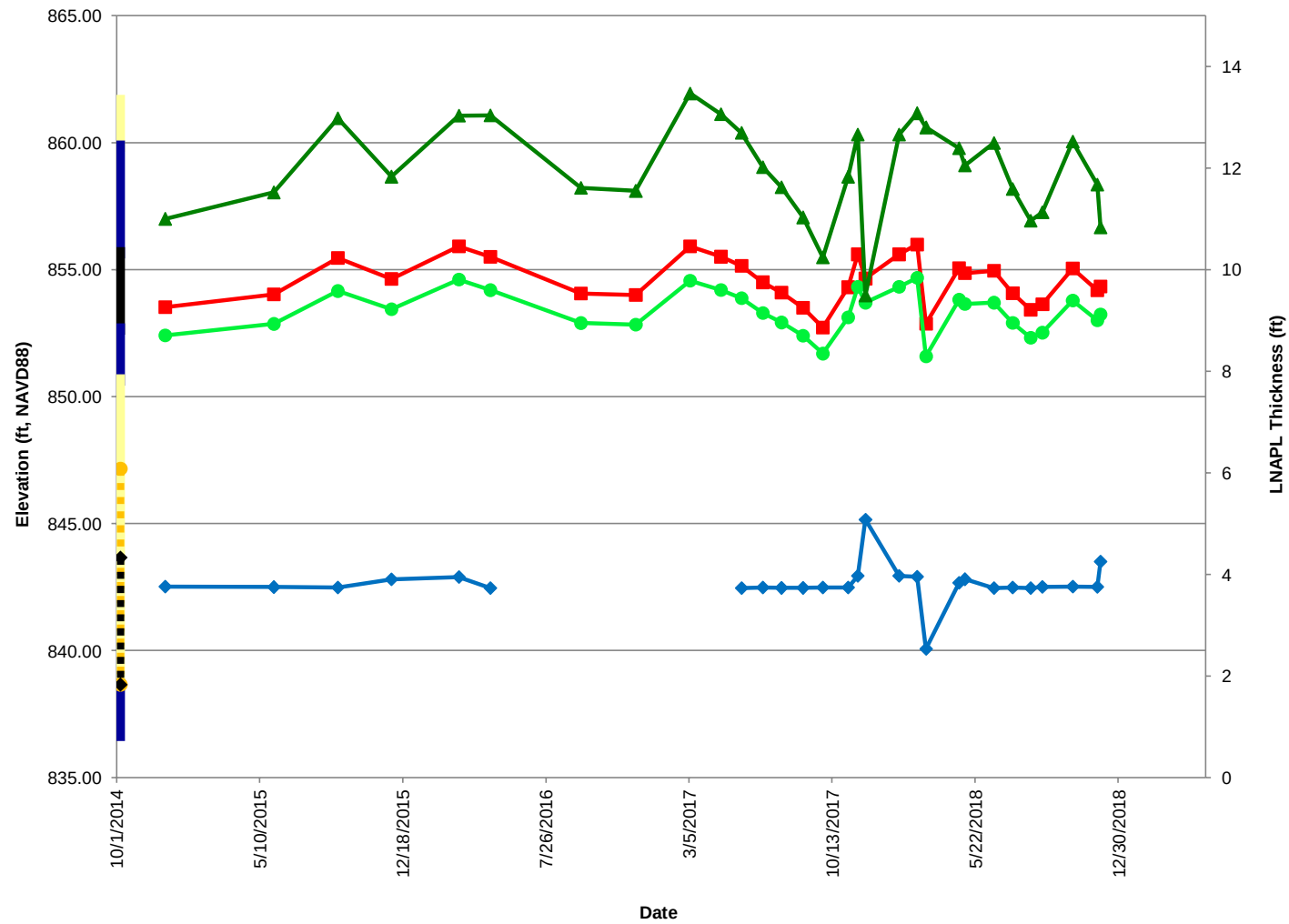


|                                                                                                                                                                               |                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                  |                           |
| LMW-14-14D DIAGNOSTIC GAUGE PLOT                                                                                                                                              |                           |
|  ARCADIS<br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><b>B</b> |



■ Air-NAPL Interface
 ◆ NAPL-Water or Air-Water Interface
 ● NAPL Thickness

|                                                                                                                                                                    |                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                       |                           |
| <b>LMW-14-14D DIAGNOSTIC GAUGE PLOT</b>                                                                                                                            |                           |
|  <small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><b>C</b> |



RACER Lansing  
Lansing, MI

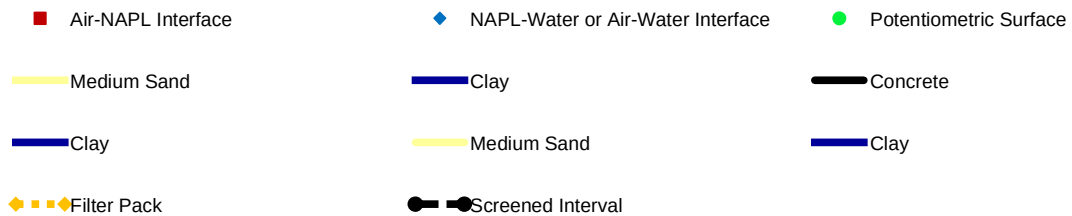
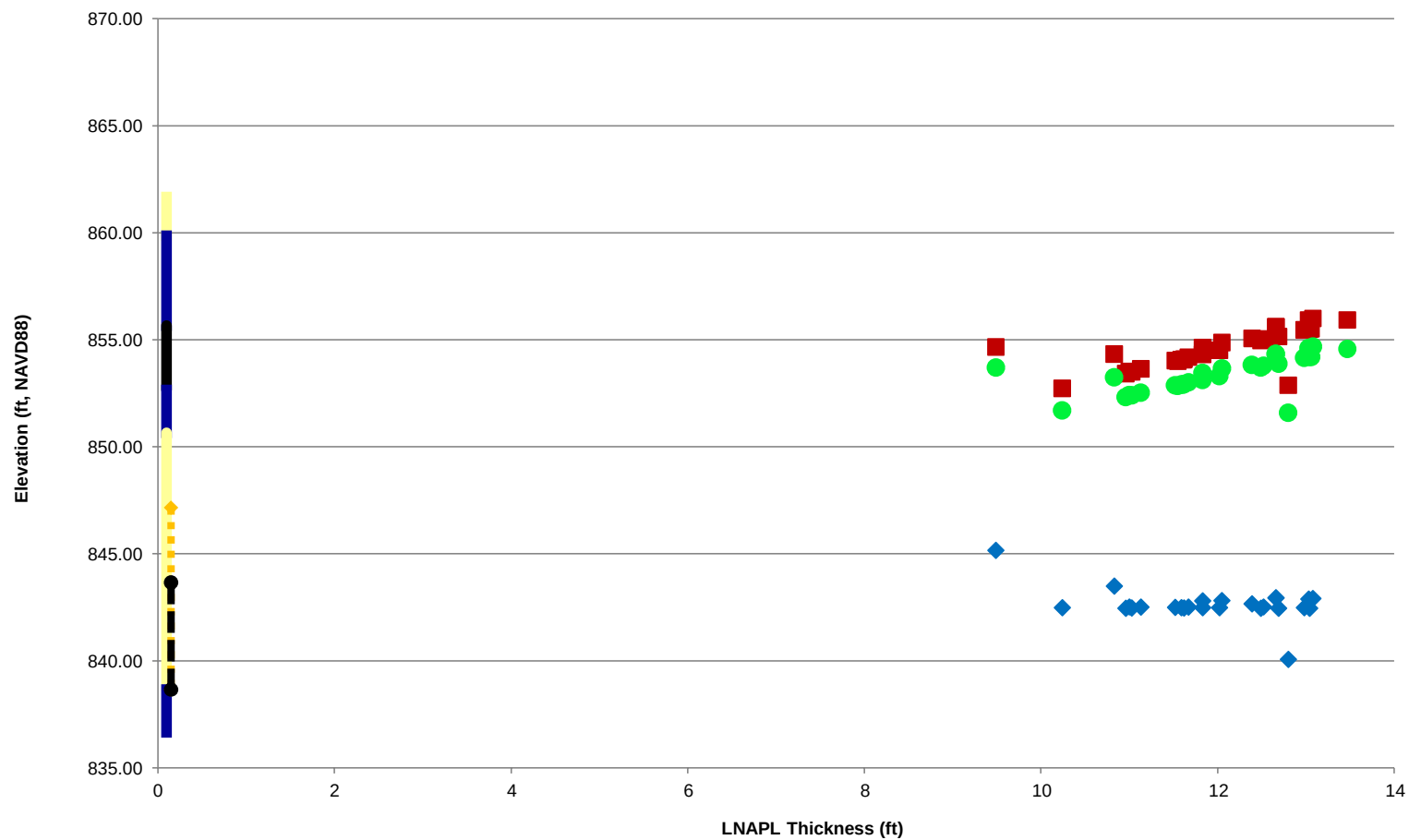
### LMW-14-15D LNAPL HYDROGRAPH

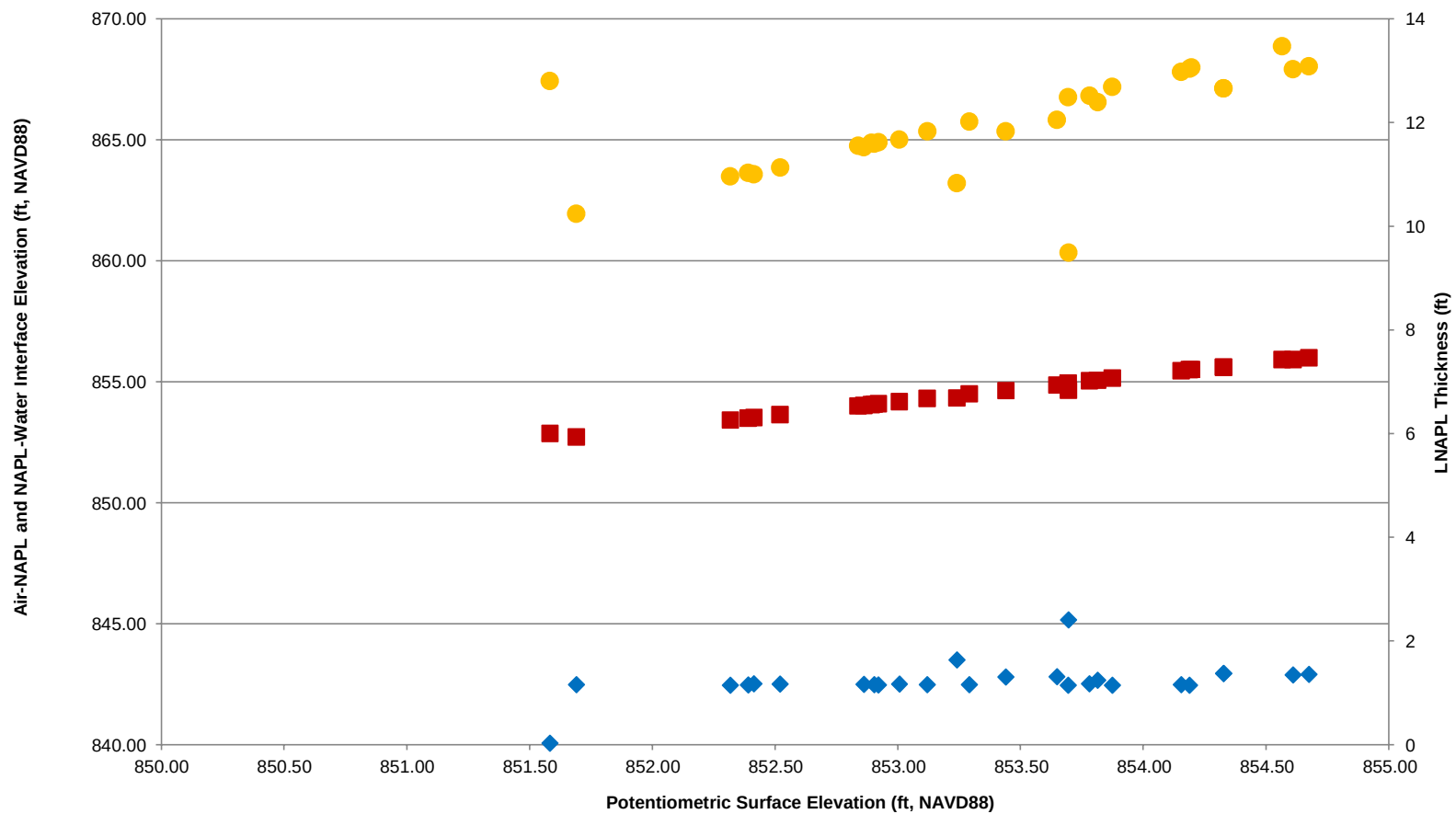
**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE

**A**

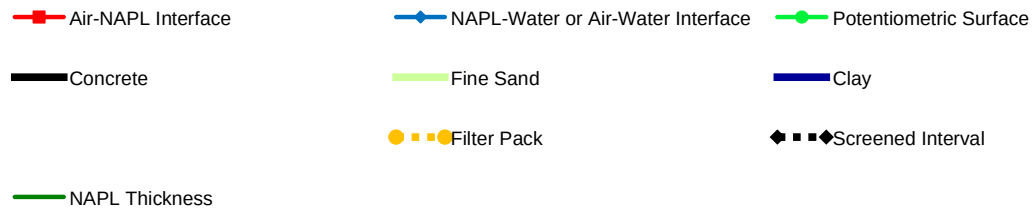
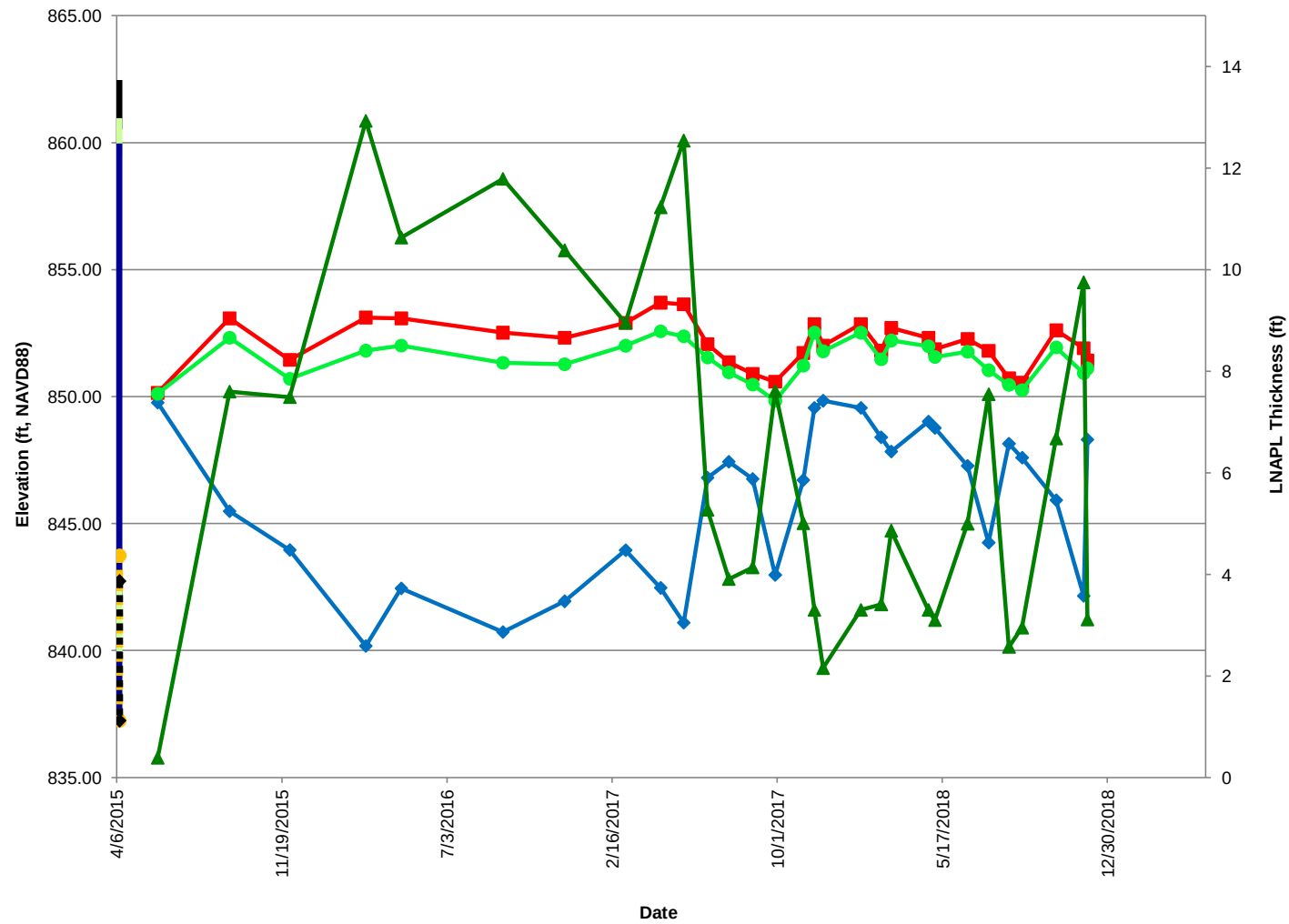




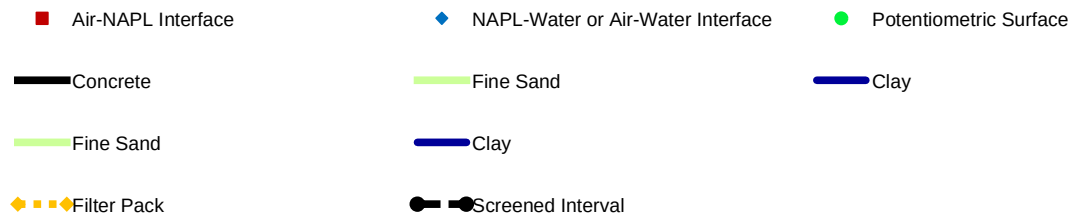
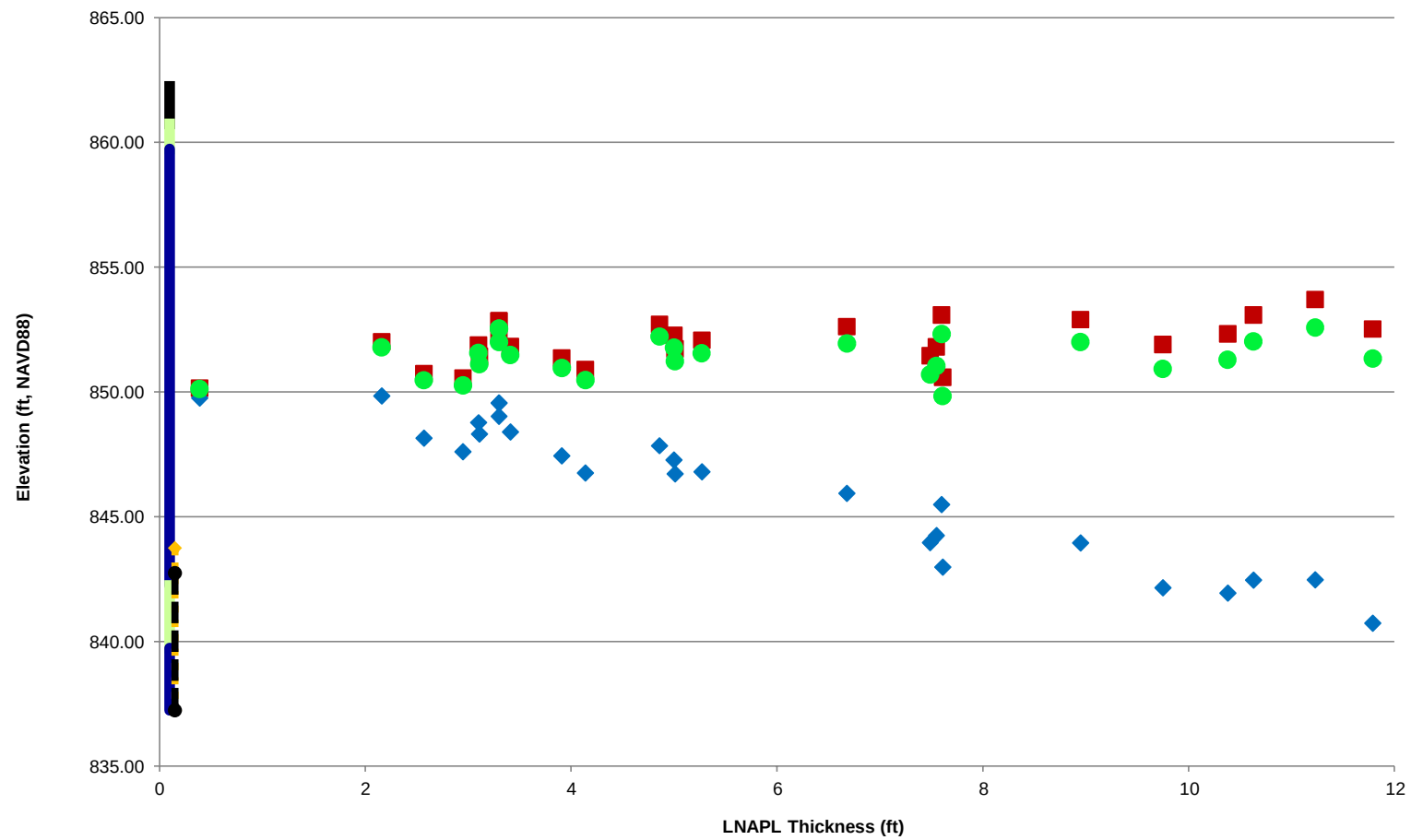


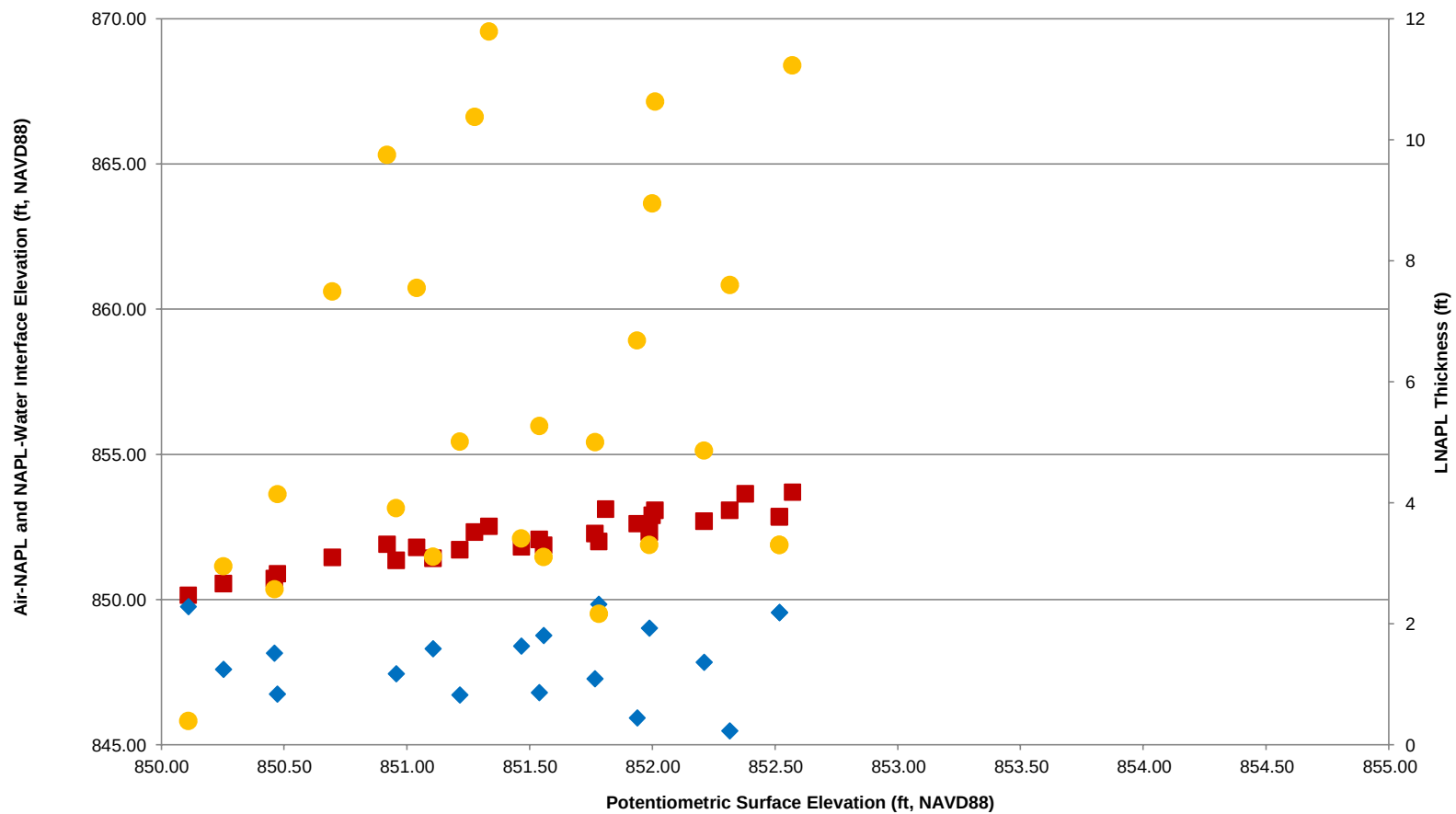
■ Air-NAPL Interface
 ◆ NAPL-Water or Air-Water Interface
 ● NAPL Thickness

|                                                                                                                                                                               |                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                  |                    |
| LMW-14-15D DIAGNOSTIC GAUGE PLOT                                                                                                                                              |                    |
|  ARCADIS<br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | FIGURE<br><b>C</b> |



|                                                                                                |                           |
|------------------------------------------------------------------------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI                                                                   |                           |
| <b>LMW-15-16D LNAPL HYDROGRAPH</b>                                                             |                           |
| <b>ARCADIS</b><br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><b>A</b> |





■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

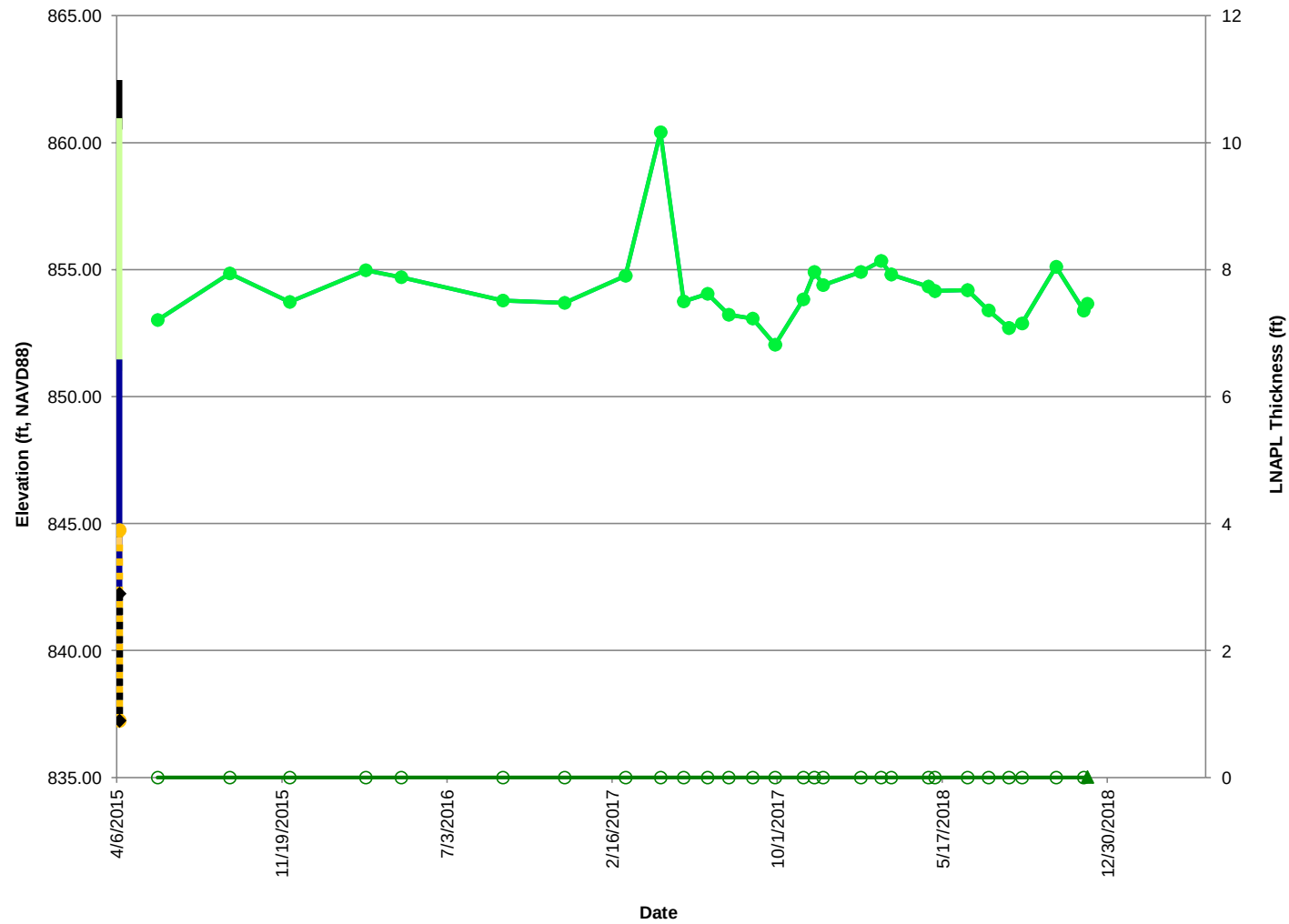
RACER Lansing  
Lansing, MI

LMW-15-16D DIAGNOSTIC GAUGE PLOT

ARCADIS Design & Consultancy  
for natural and built assets

FIGURE

C



- ◆ NAPL-Water or Air-Water Interface
- Potentiometric Surface
- Concrete
- Fine Sand
- Clay
- Medium Sand
- Clay
- Filter Pack
- ◆ Screened Interval
- NAPL Thickness

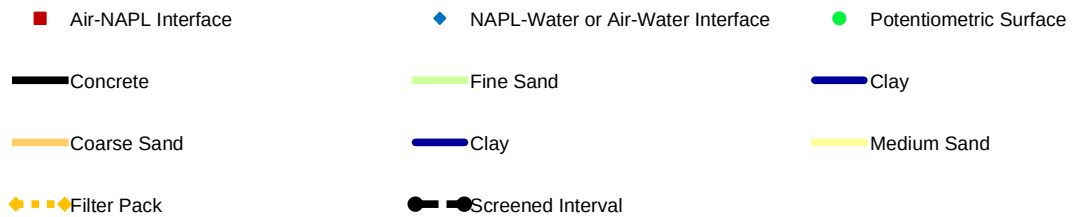
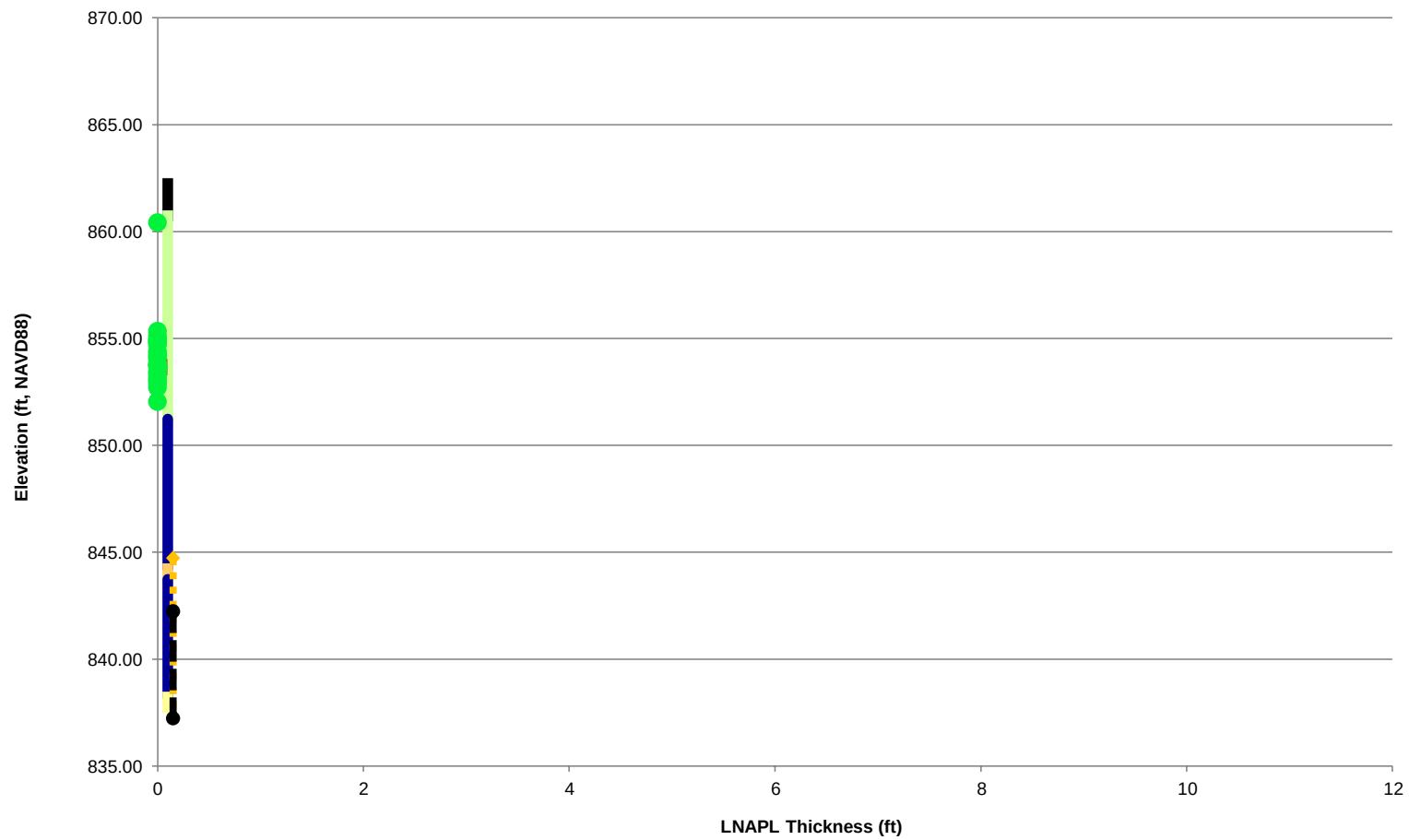
RACER Lansing  
Lansing, MI

### LMW-15-17D LNAPL HYDROGRAPH

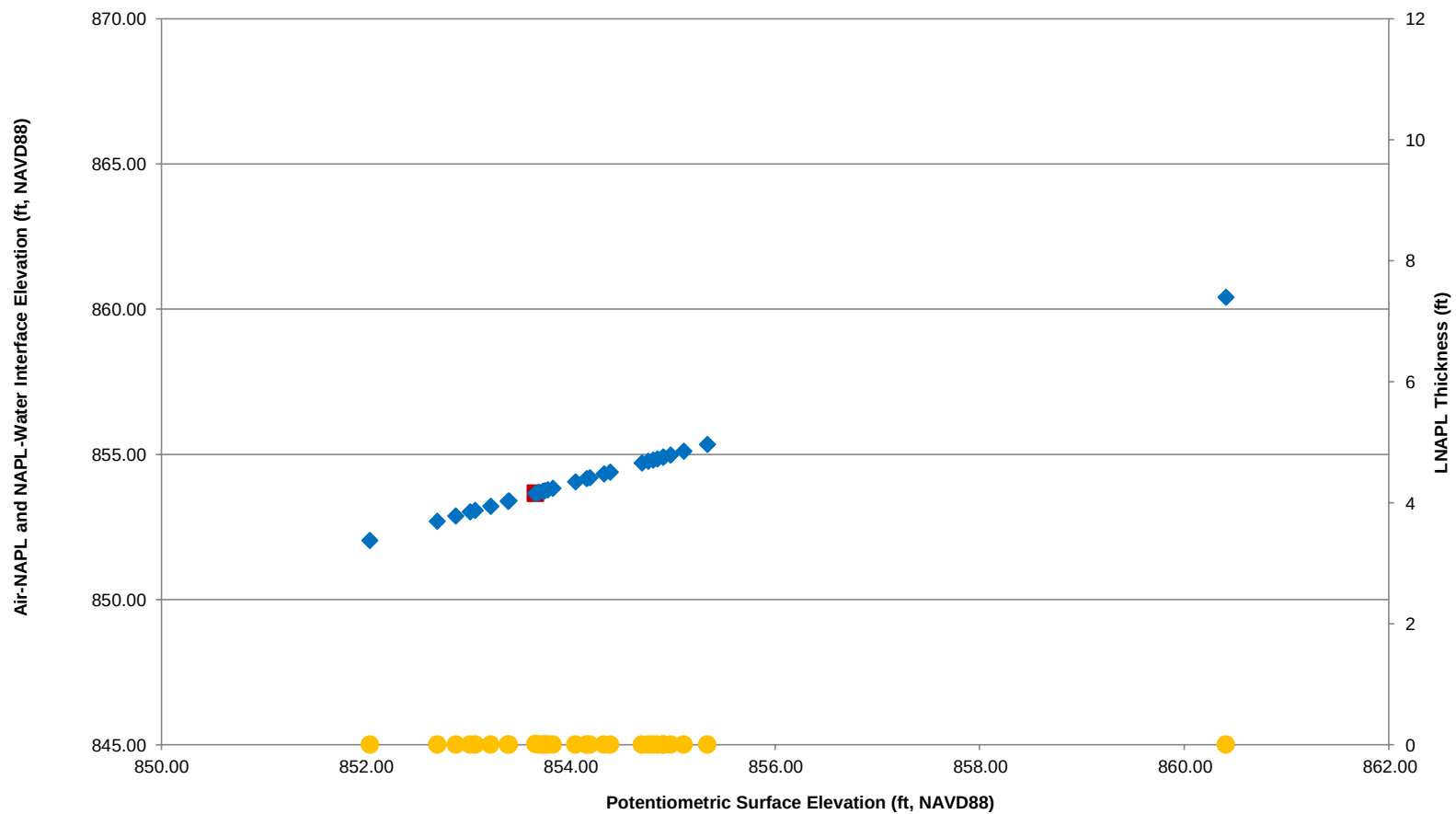
**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE

**A**



|                                                                                                                                                                            |                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                               |                               |
| LMW-15-17D DIAGNOSTIC GAUGE PLOT                                                                                                                                           |                               |
|  ARCADIS <small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><br><b>B</b> |



■ Air-NAPL Interface
 ◆ NAPL-Water or Air-Water Interface
 ● NAPL Thickness

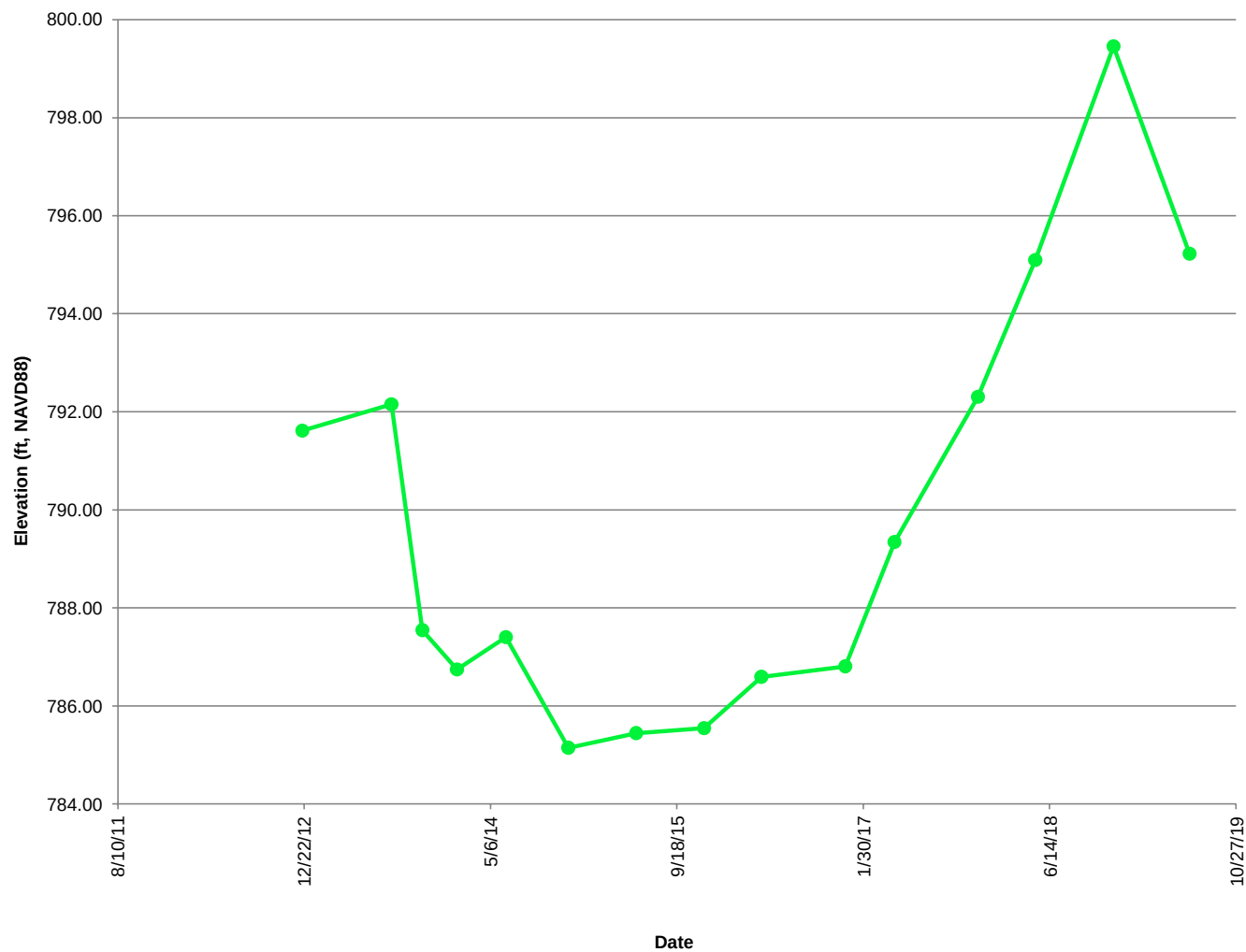
|                                                                                                                                                                    |                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                       |                           |
| <b>LMW-15-17D DIAGNOSTIC GAUGE PLOT</b>                                                                                                                            |                           |
|  <small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><b>C</b> |



# APPENDIX E

Groundwater Elevation Trend Graphs  
(On attached CD)





—●— Potentiometric Surface

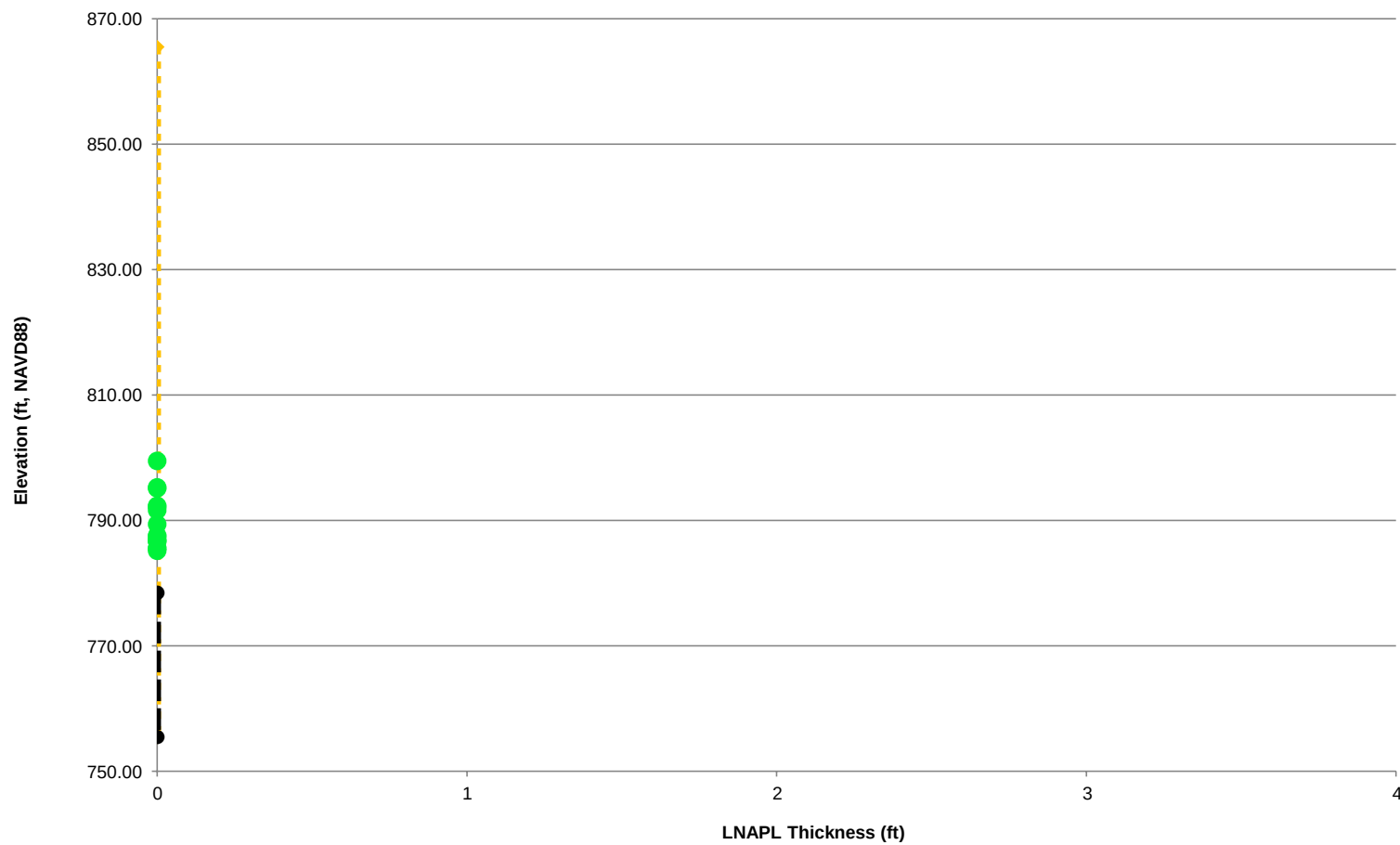
RACER Lansing Plant 2  
Lansing, MI

**MW-12-01 HYDROGRAPH**  
**BEDROCK**

 **ARCADIS** | Design & Consultancy  
for natural and built assets

FIGURE

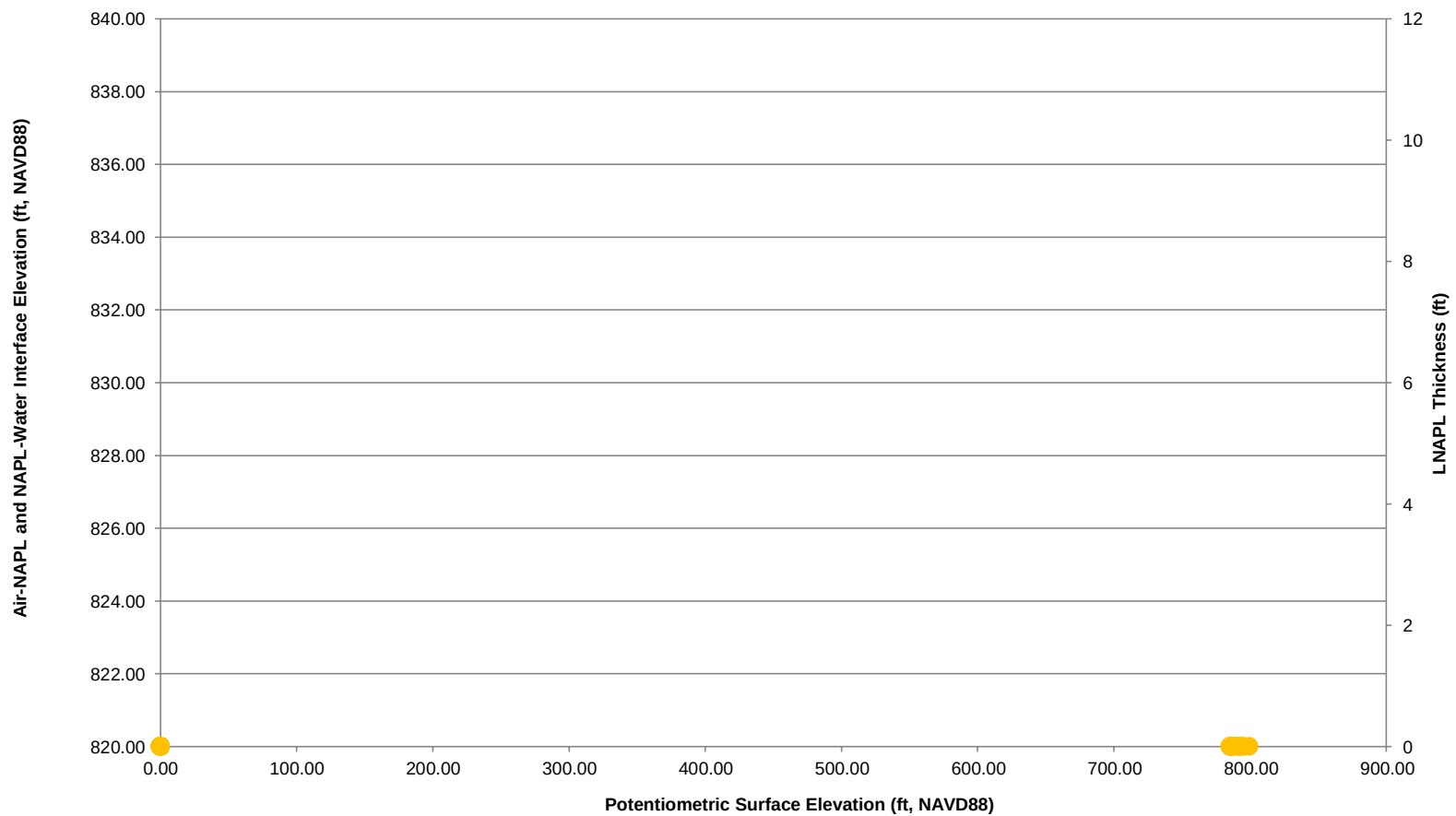
**A**



■ Air-NAPL Interface      ◆ NAPL-Water or Air-Water Interface      ● Potentiometric Surface

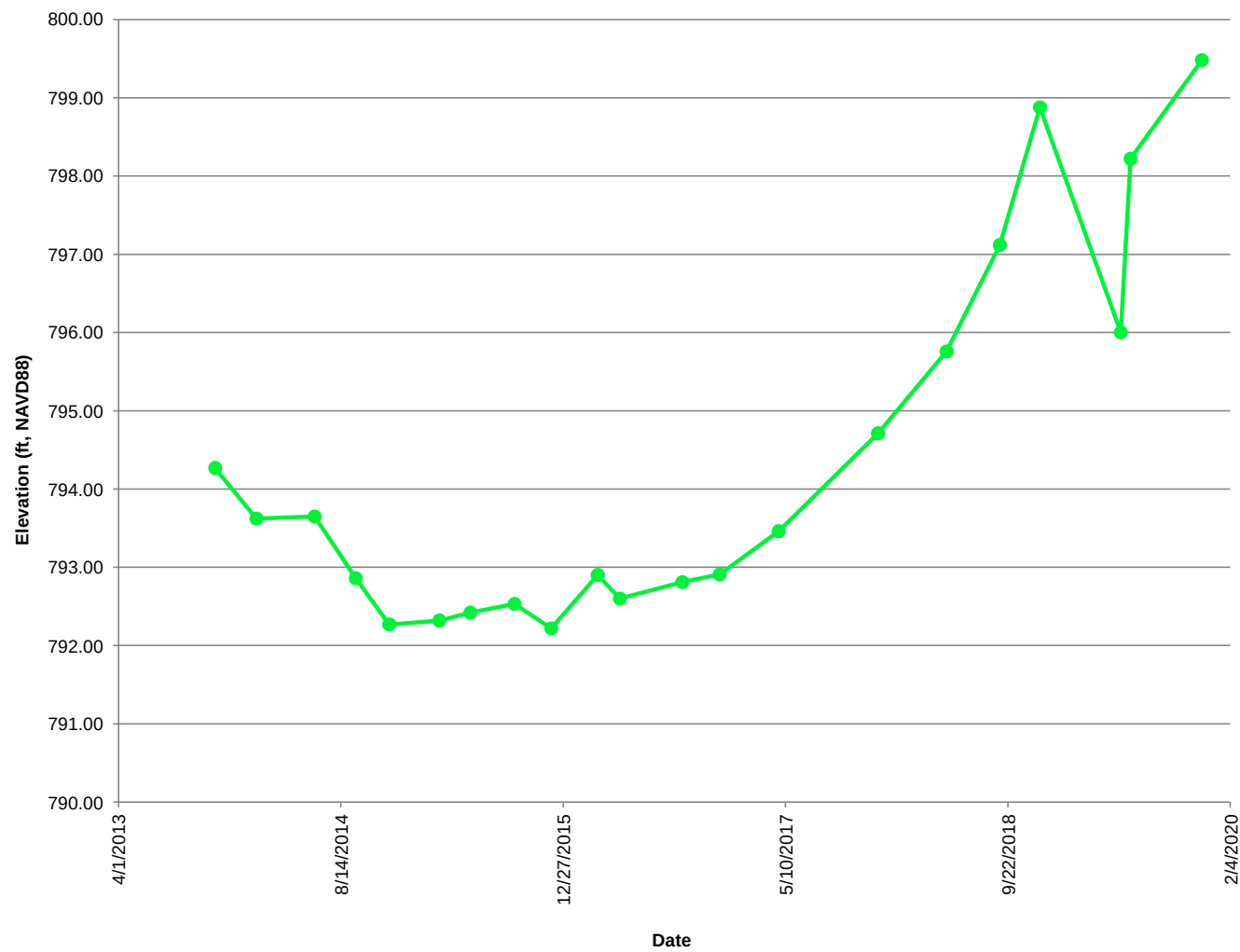
◆ Filter Pack      ● Screened Interval

|                                                                    |                    |
|--------------------------------------------------------------------|--------------------|
| RACER Lansing<br>Lansing, MI                                       |                    |
| MW-12-01 DIAGNOSTIC GAUGE PLOT                                     |                    |
| ARCADIS<br>Design & Consultancy<br>for natural and<br>built assets | FIGURE<br><b>B</b> |



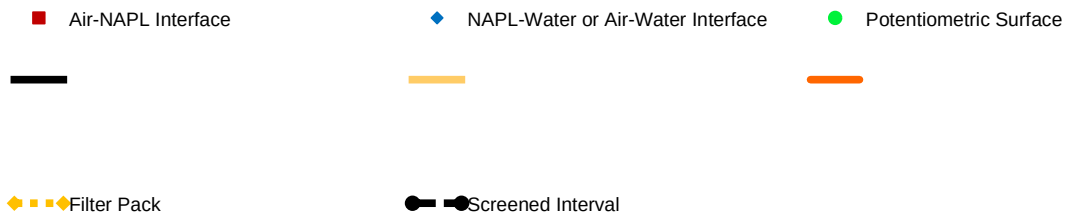
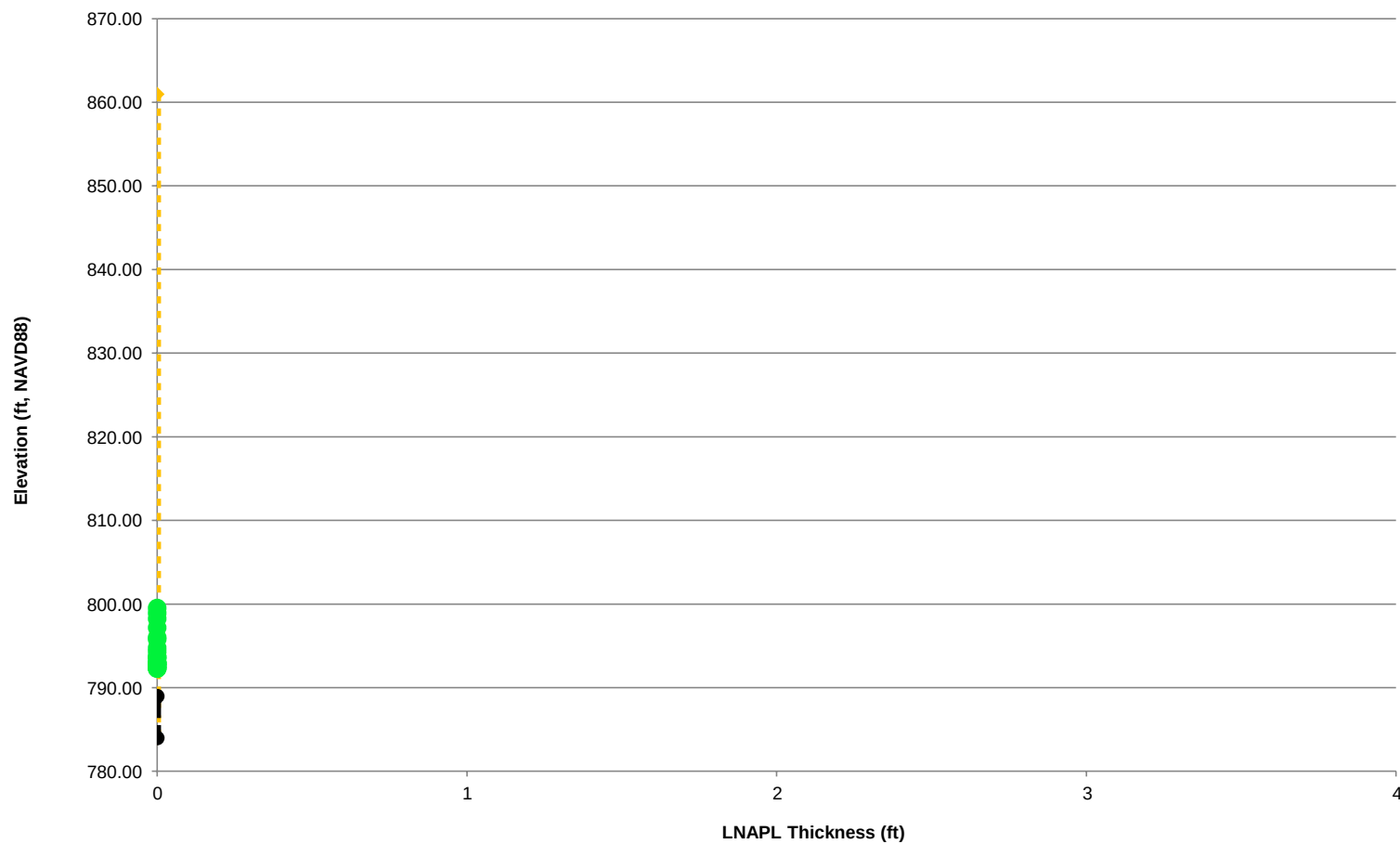
■ Air-NAPL Interface
 ◆ NAPL-Water or Air-Water Interface
 ● NAPL Thickness

|                                                                                                                                                                               |                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                  |                           |
| <b>MW-12-01 DIAGNOSTIC GAUGE PLOT</b>                                                                                                                                         |                           |
|  ARCADIS<br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><b>C</b> |

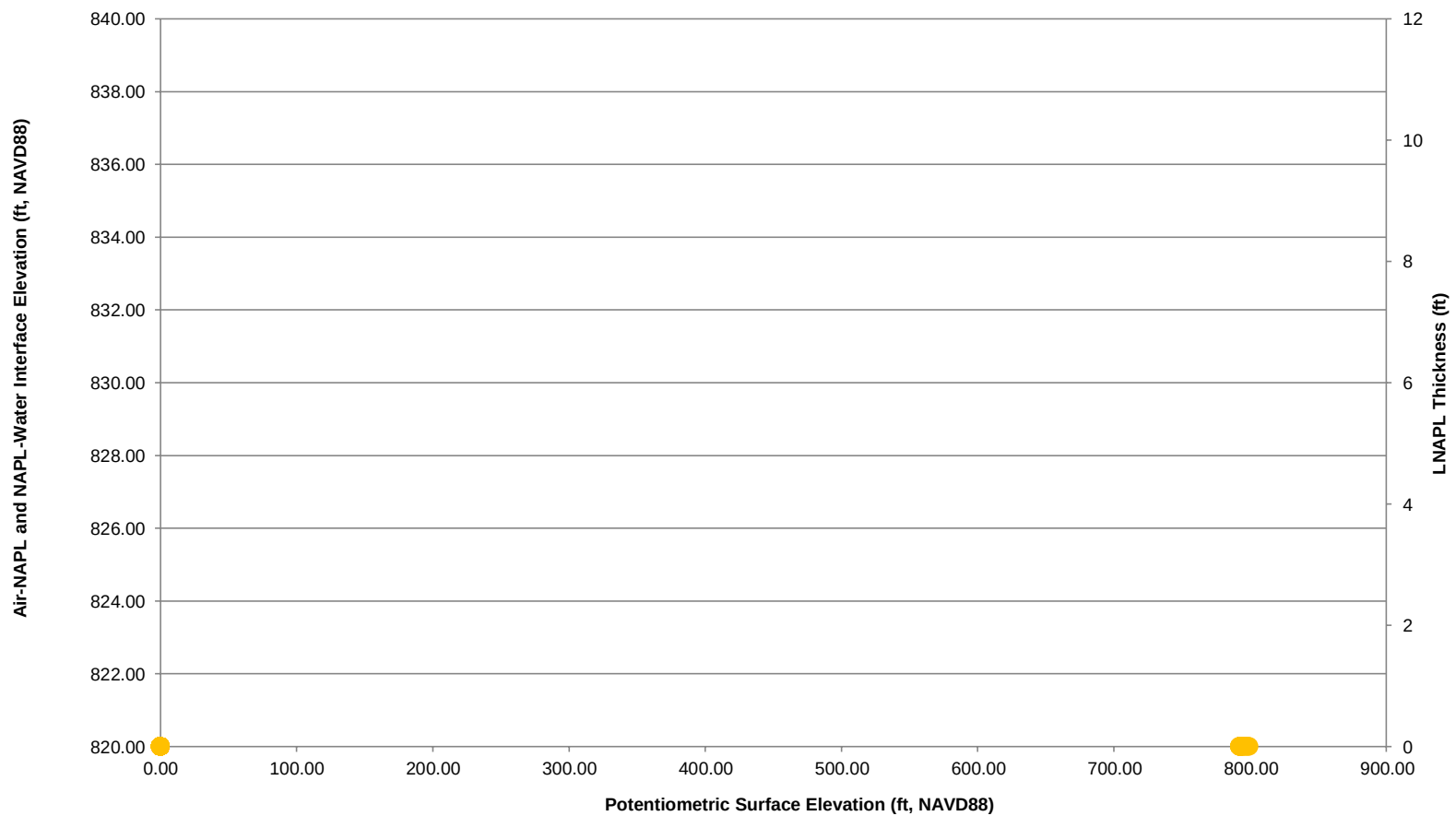


—●— Potentiometric Surface

|                                                                                                                                                                    |                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| RACER Lansing Plant 2<br>Lansing, MI                                                                                                                               |                    |
| MW-13-43 HYDROGRAPH<br>DEEP OVERBURDEN/WEATHERED BEDROCK                                                                                                           |                    |
|  <small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | FIGURE<br><b>A</b> |

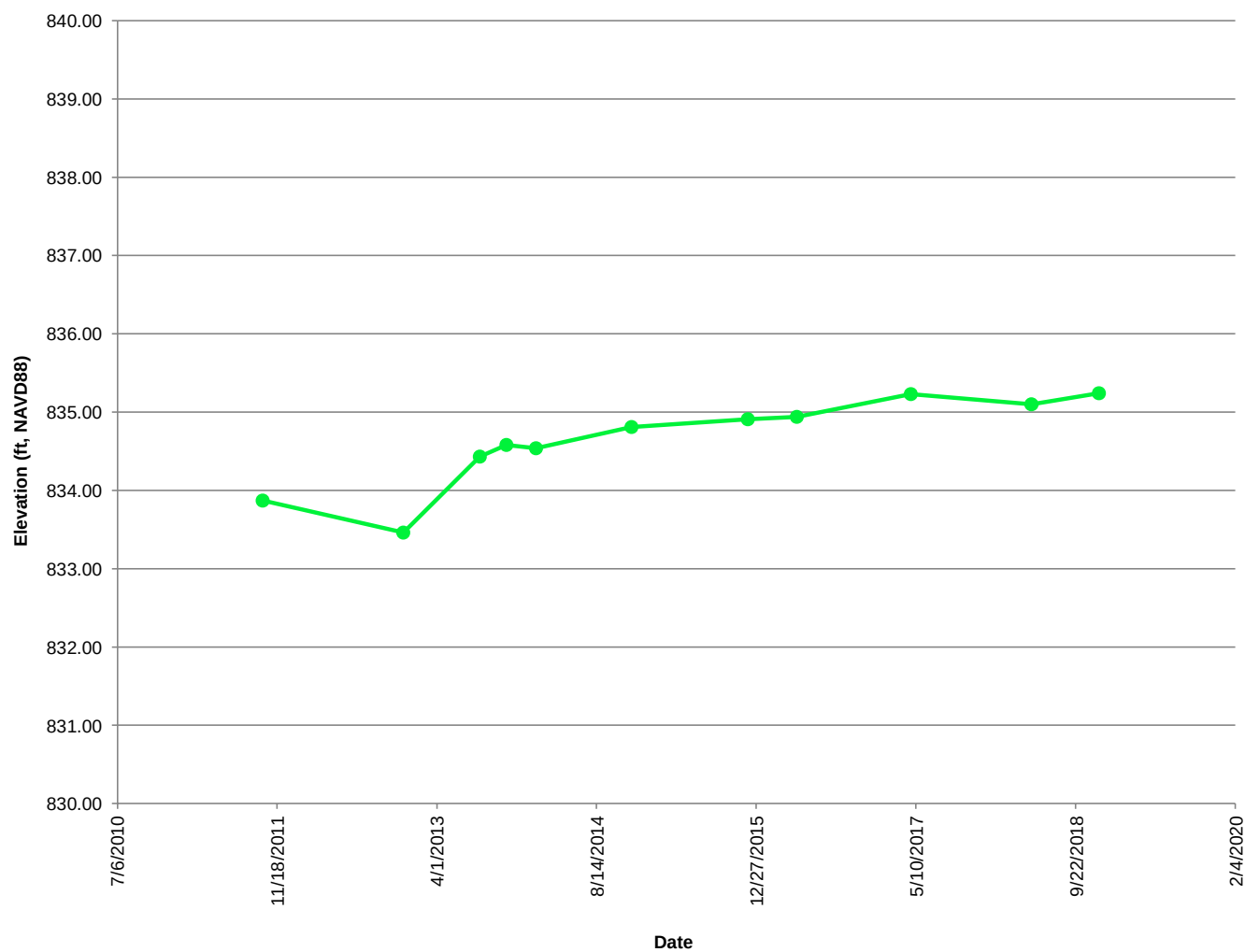


|                                                                                                                                                                    |                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                       |                                                                    |
| <b>MW-13-43 DIAGNOSTIC GAUGE PLOT</b>                                                                                                                              |                                                                    |
|  <small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><br><span style="font-size: 2em;"><b>B</b></span> |



■ Air-NAPL Interface
 ◆ NAPL-Water or Air-Water Interface
 ● NAPL Thickness

|                                                                                                                                                                            |                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                               |                           |
| <b>MW-13-43 DIAGNOSTIC GAUGE PLOT</b>                                                                                                                                      |                           |
|  ARCADIS <small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><b>C</b> |



—●— Potentiometric Surface

RACER Lansing Plant 2  
Lansing, MI

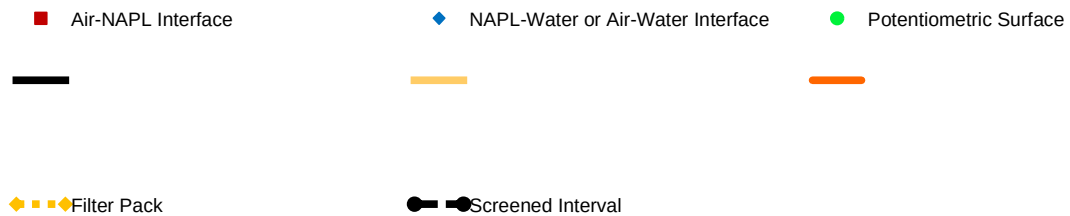
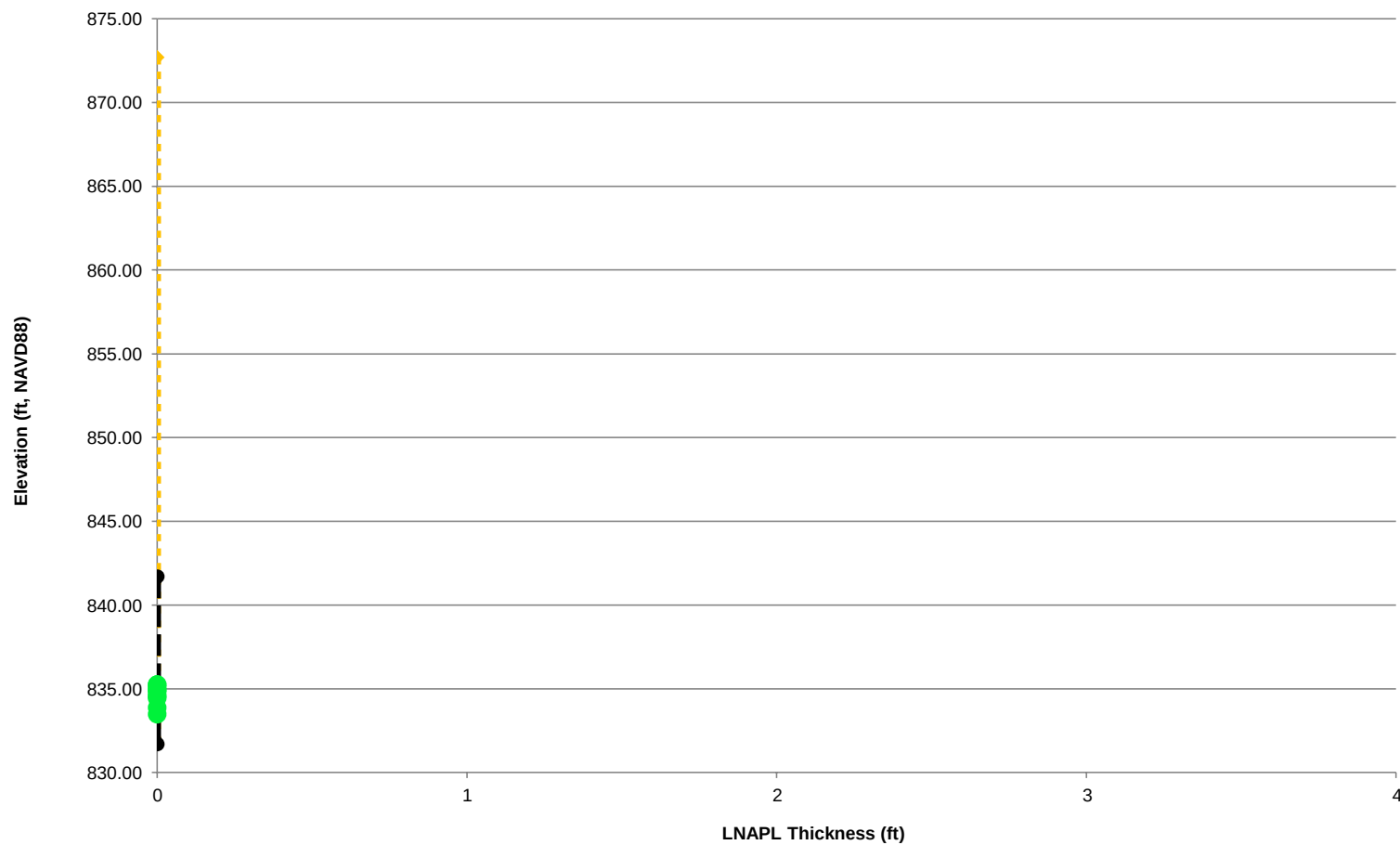
**P2-MW-02 HYDROGRAPH**  
**PERCHED**

**ARCADIS** | Design & Consultancy  
for natural and built assets

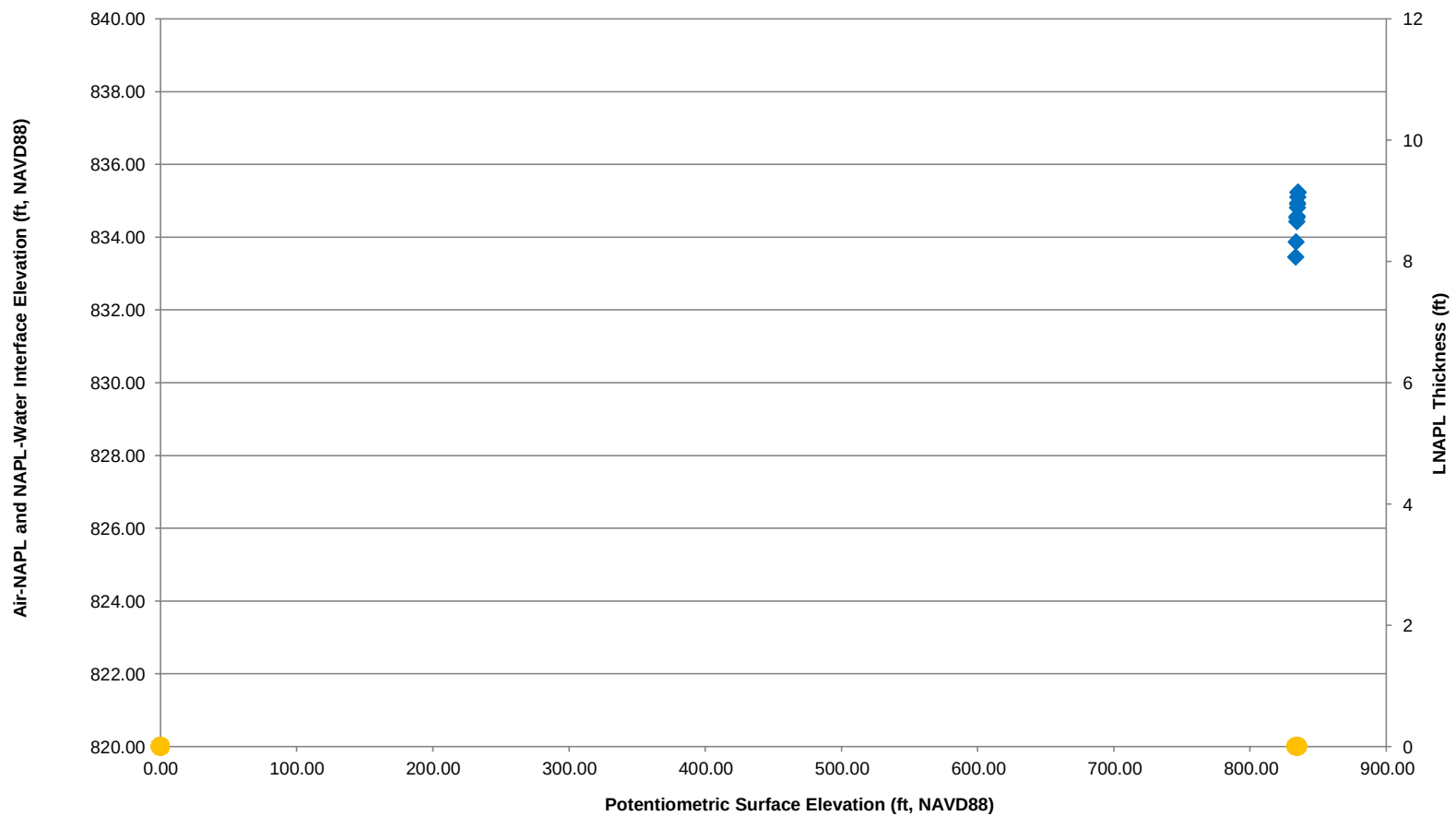
FIGURE

**A**





|                                                                    |             |
|--------------------------------------------------------------------|-------------|
| RACER Lansing<br>Lansing, MI                                       |             |
| P2-MW-02 DIAGNOSTIC GAUGE PLOT                                     |             |
| ARCADIS<br>Design & Consultancy<br>for natural and<br>built assets | FIGURE<br>B |



■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

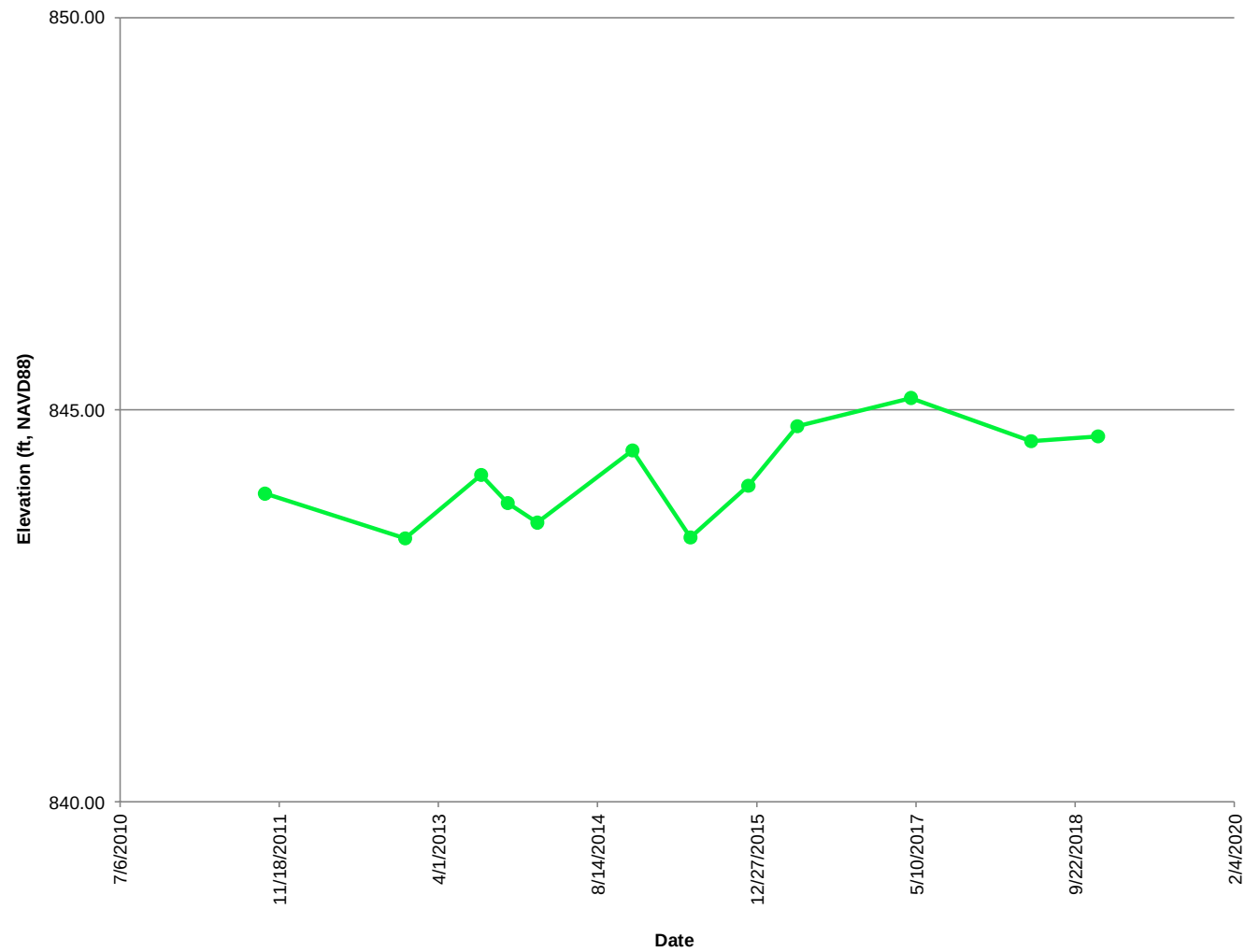
RACER Lansing  
Lansing, MI

**P2-MW-02 DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and  
built assets

FIGURE

**C**



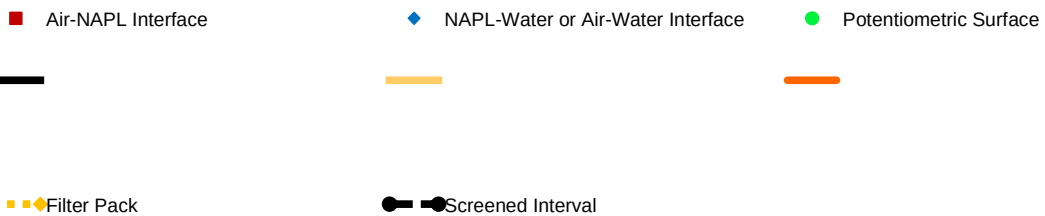
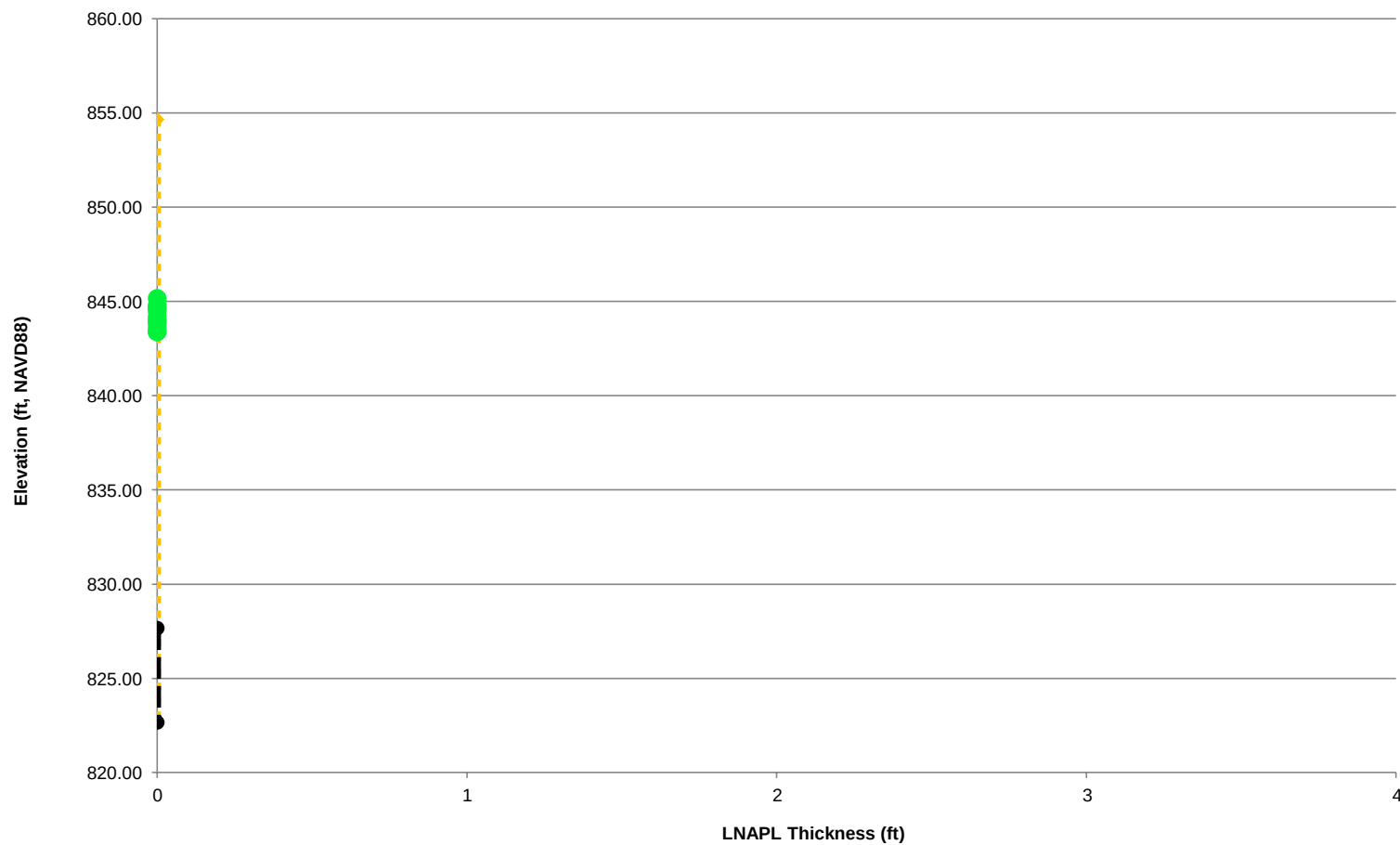
—●— Potentiometric Surface

RACER Lansing Plant 2  
Lansing, MI

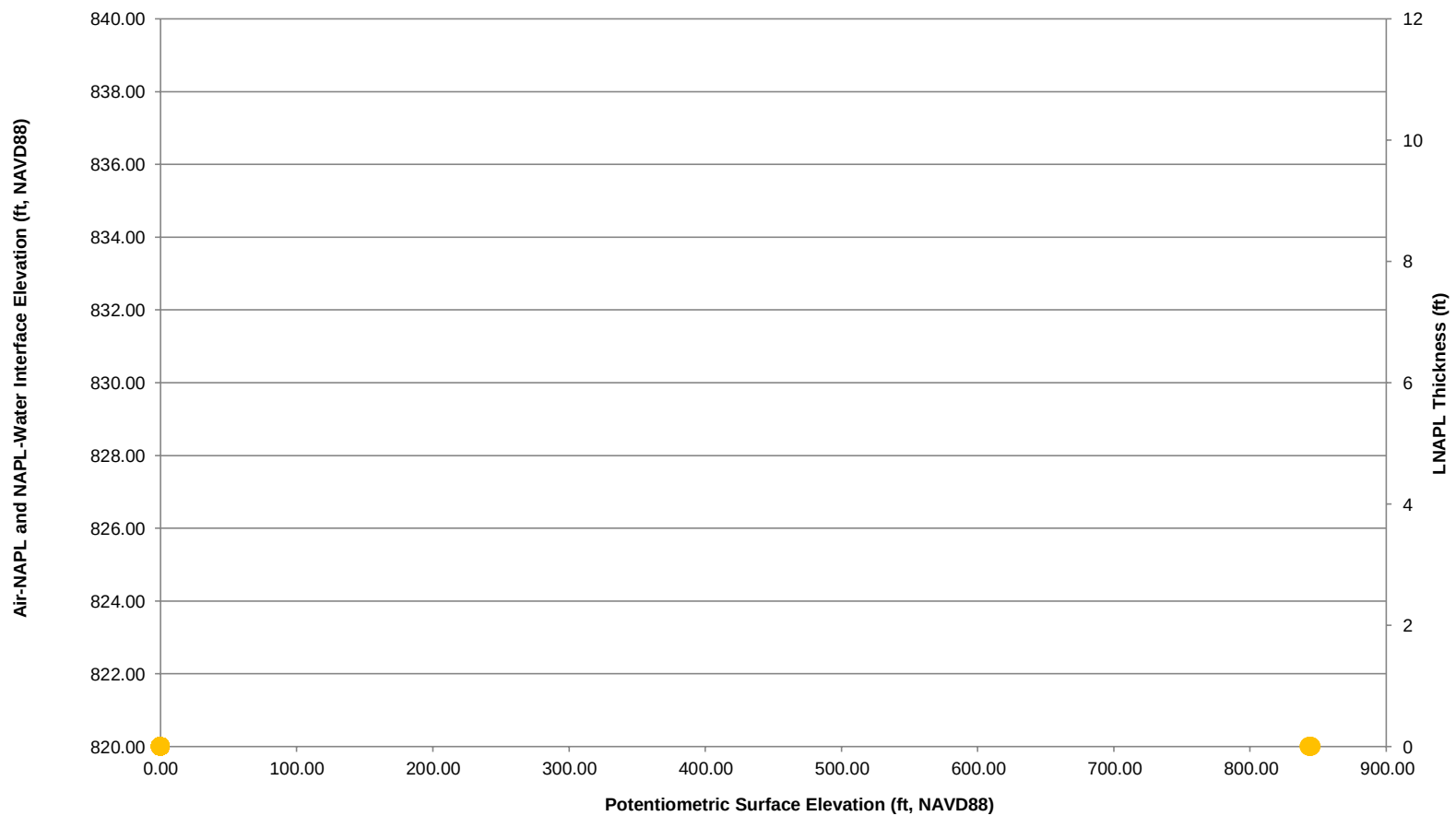
**P2-MW-03 HYDROGRAPH**  
**PERCHED**

 **ARCADIS** | Design & Consultancy  
for natural and built assets

FIGURE  
**A**



|                                                                    |             |
|--------------------------------------------------------------------|-------------|
| RACER Lansing<br>Lansing, MI                                       |             |
| P2-MW-03 DIAGNOSTIC GAUGE PLOT                                     |             |
| ARCADIS<br>Design & Consultancy<br>for natural and<br>built assets | FIGURE<br>B |



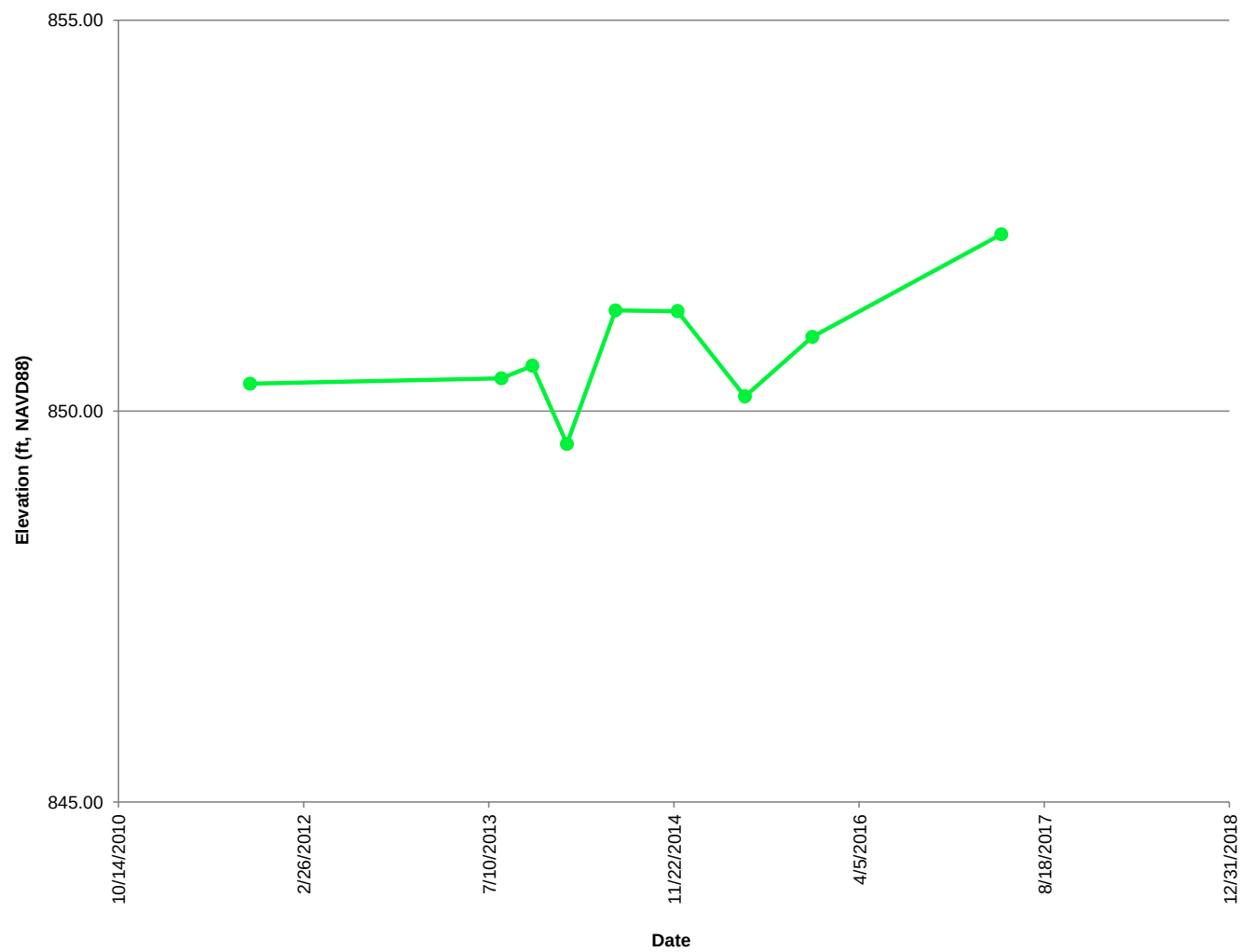
■ Air-NAPL Interface      ◆ NAPL-Water or Air-Water Interface      ● NAPL Thickness

RACER Lansing  
Lansing, MI

**P2-MW-03 DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE  
**C**



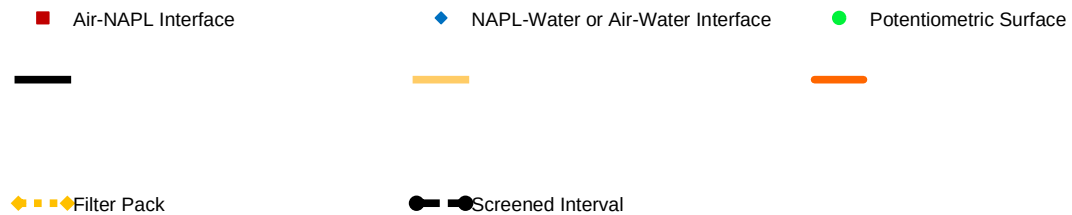
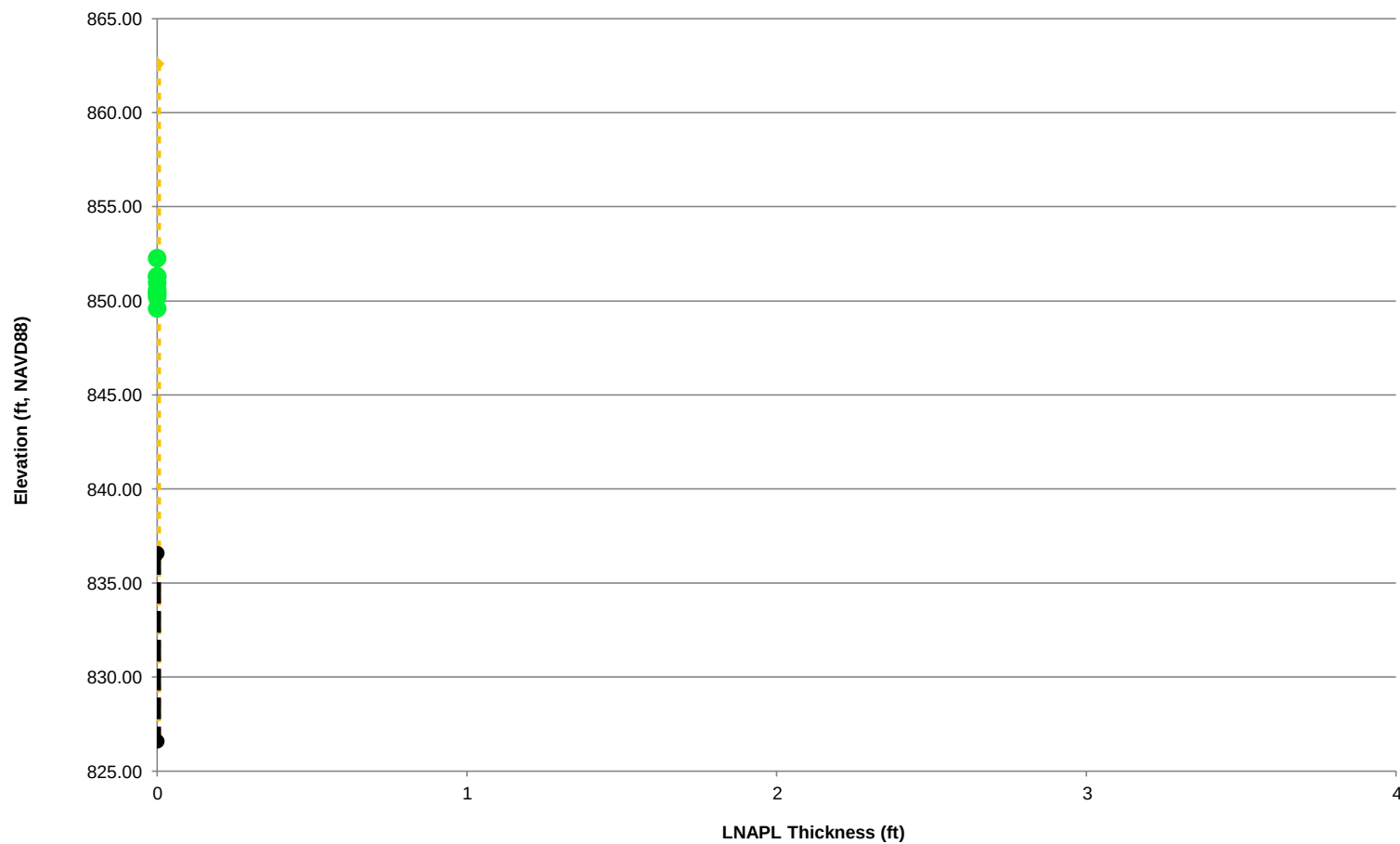
—●— Potentiometric Surface

RACER Lansing Plant 2  
Lansing, MI

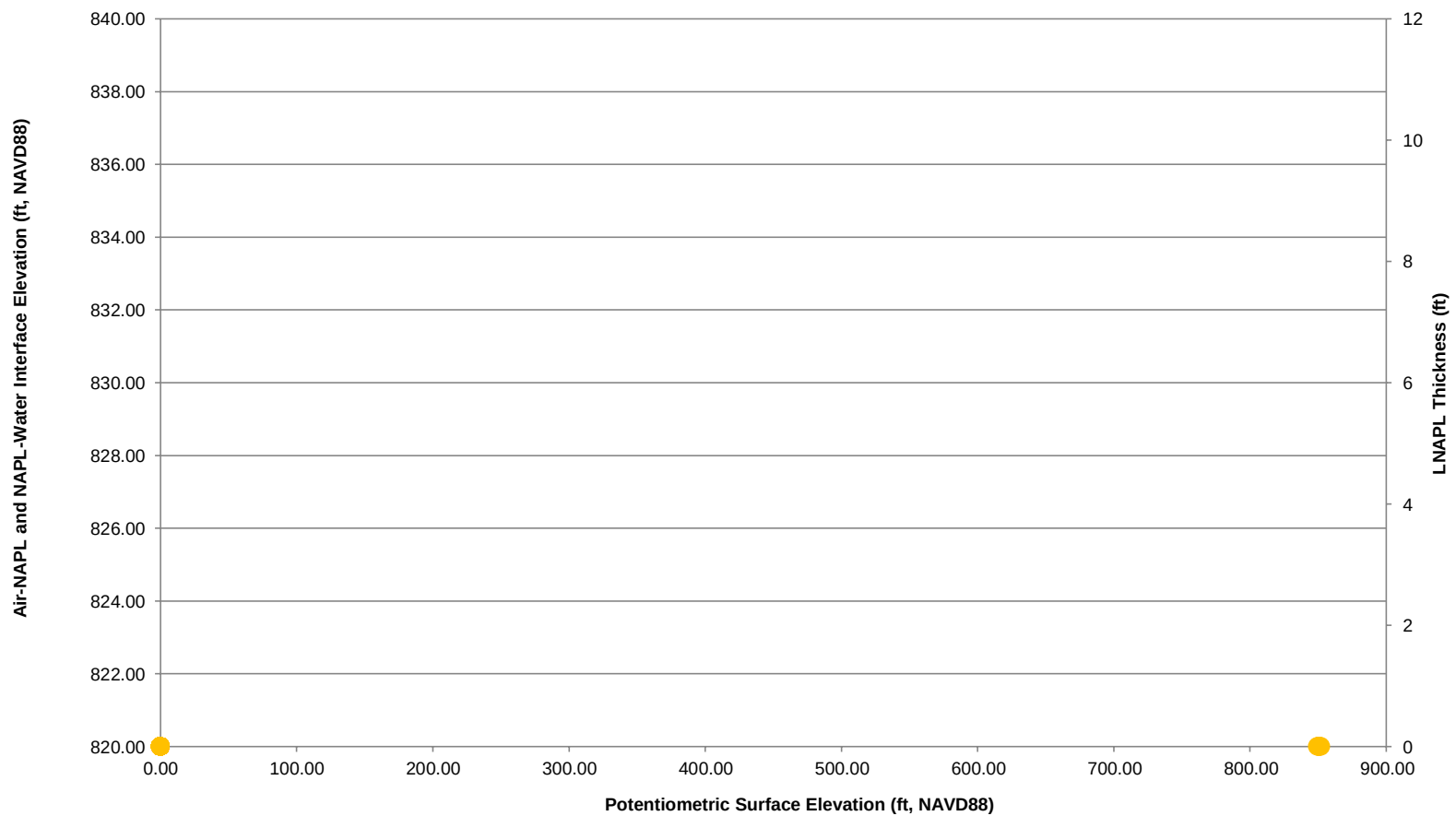
**P2-MW-04 HYDROGRAPH**  
**PERCHED**

 **ARCADIS** | Design & Consultancy  
for natural and built assets

FIGURE  
**A**



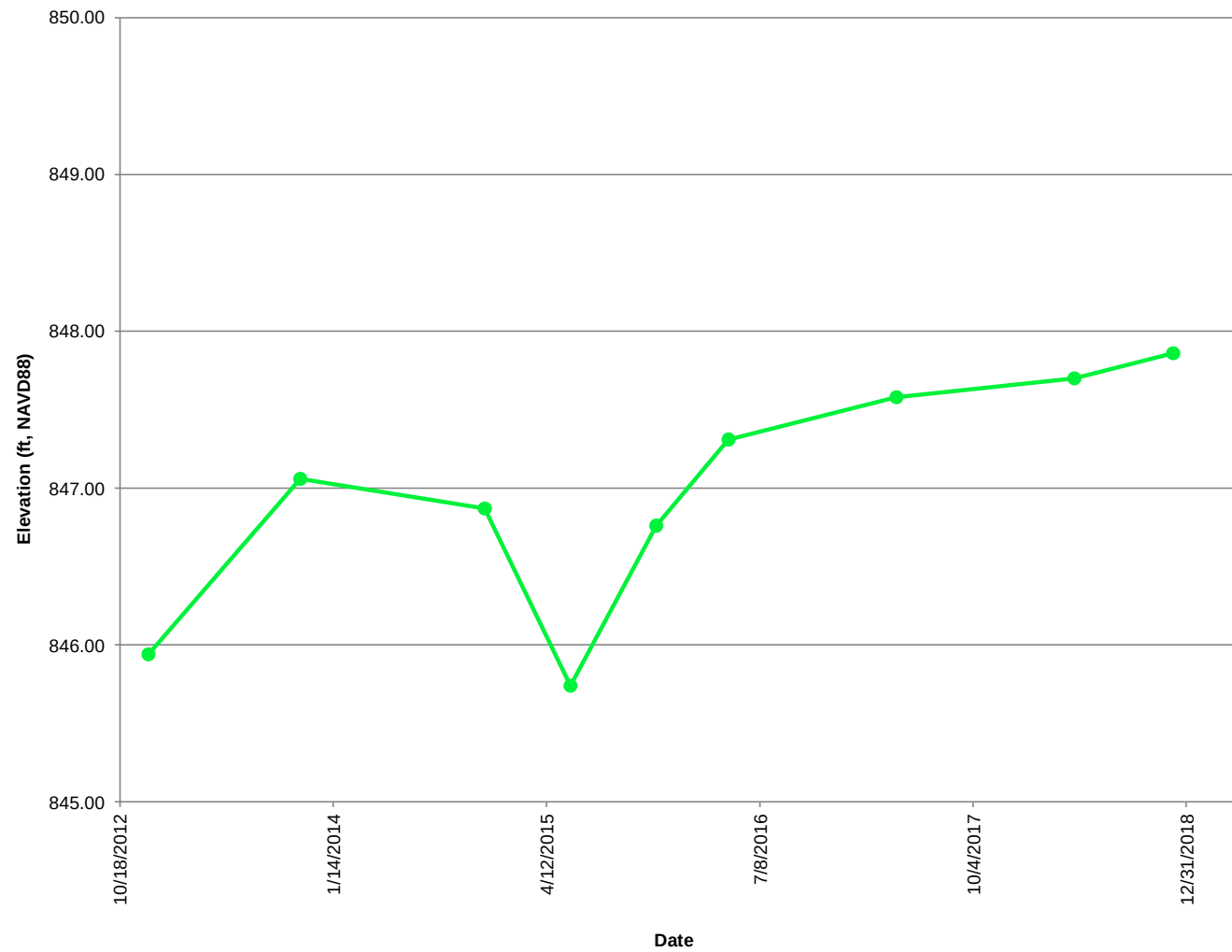
|                                                                    |                    |
|--------------------------------------------------------------------|--------------------|
| RACER Lansing<br>Lansing, MI                                       |                    |
| P2-MW-04 DIAGNOSTIC GAUGE PLOT                                     |                    |
| ARCADIS<br>Design & Consultancy<br>for natural and<br>built assets | FIGURE<br><b>B</b> |



■ Air-NAPL Interface
 ◆ NAPL-Water or Air-Water Interface
 ● NAPL Thickness

|                                                                                                                                                                               |                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                  |                           |
| <b>P2-MW-04 DIAGNOSTIC GAUGE PLOT</b>                                                                                                                                         |                           |
|  ARCADIS<br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><b>C</b> |





—●— Potentiometric Surface

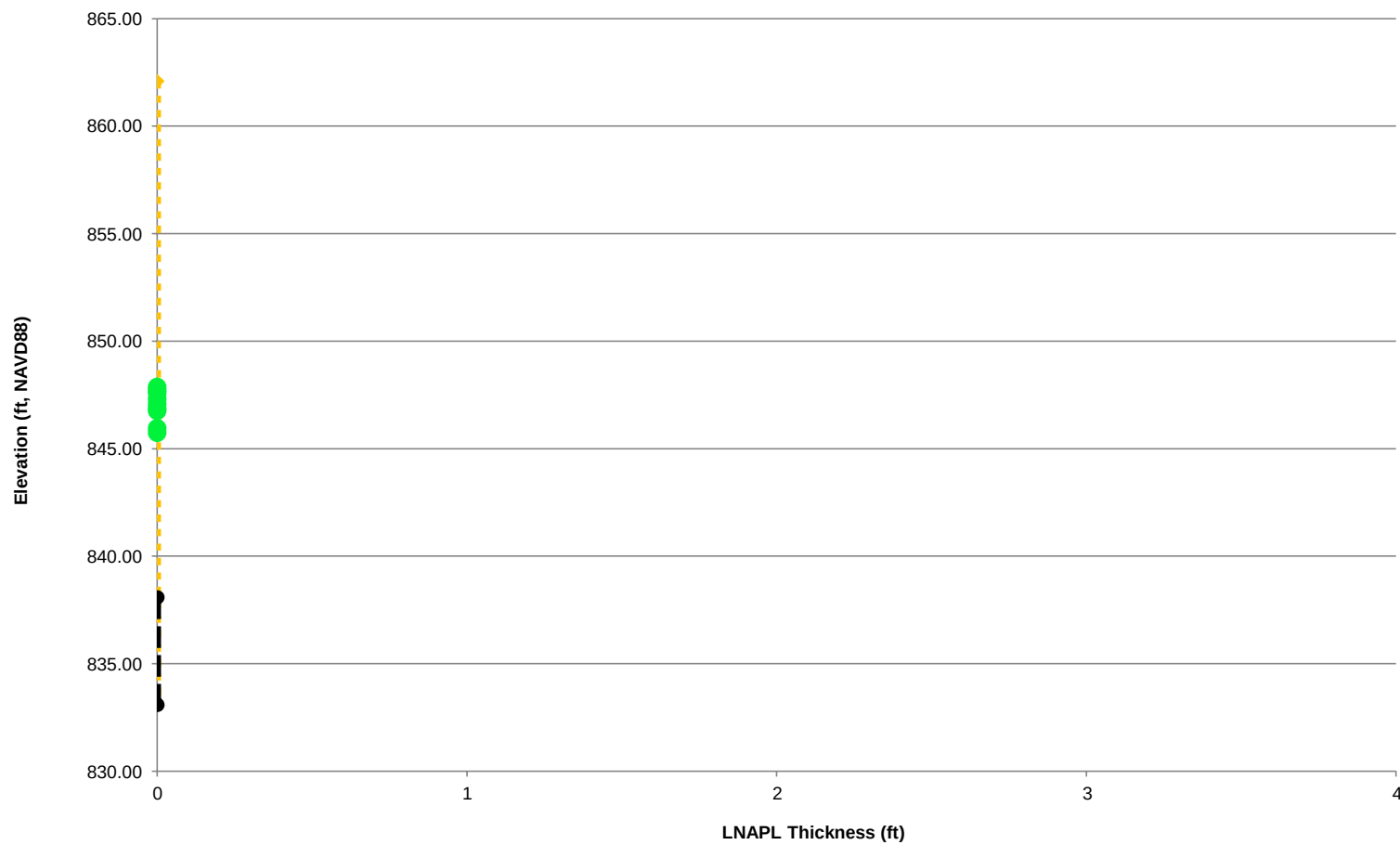
RACER Lansing Plant 2  
Lansing, MI

**P2-SB-06 HYDROGRAPH**  
PERCHED

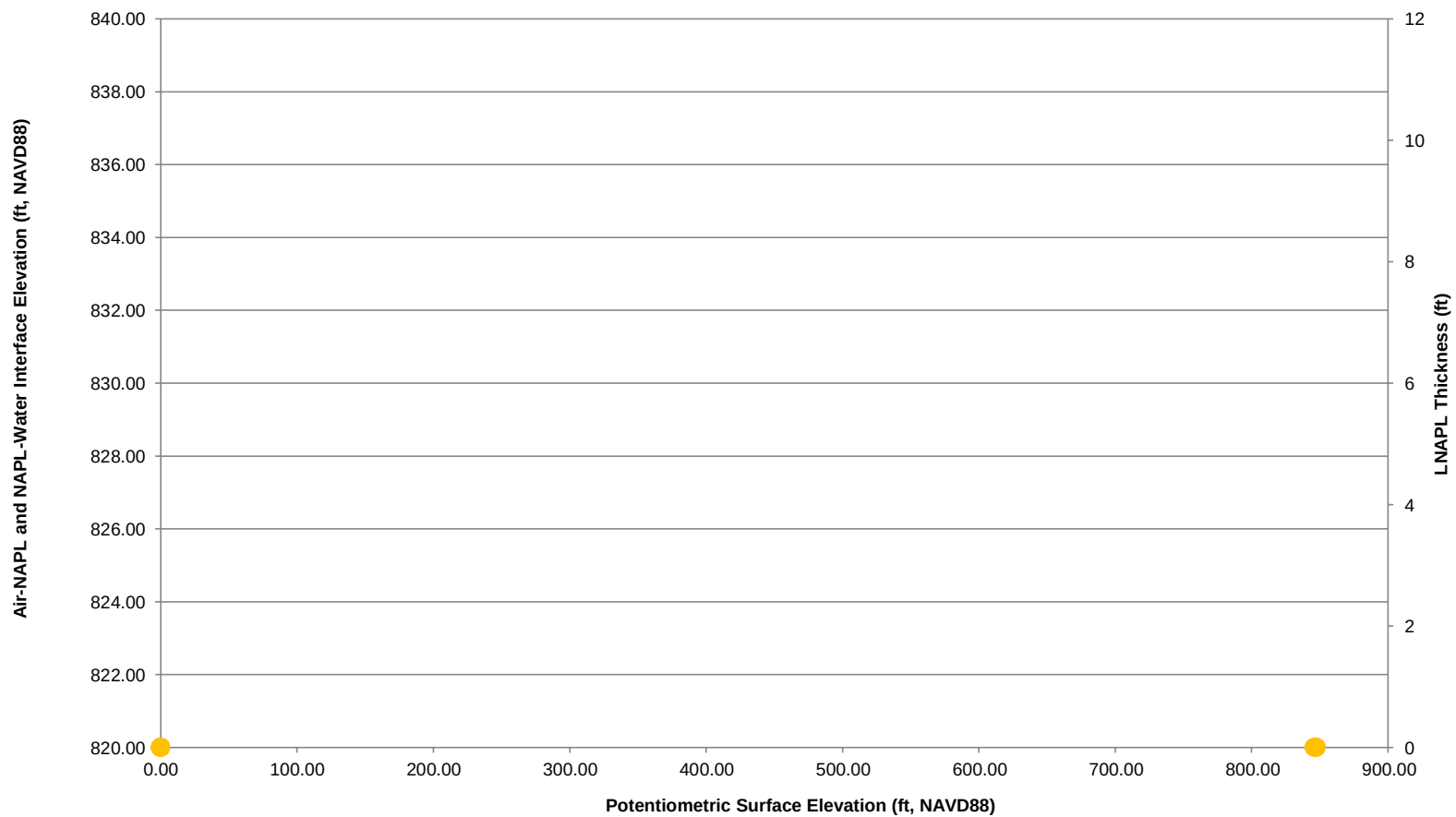
 **ARCADIS** | Design & Consultancy  
for natural and built assets

FIGURE

**A**



|                                                                                         |                    |
|-----------------------------------------------------------------------------------------|--------------------|
| RACER Lansing<br>Lansing, MI                                                            |                    |
| P2-SB-06 DIAGNOSTIC GAUGE PLOT                                                          |                    |
| ARCADIS<br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | FIGURE<br><b>B</b> |



■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

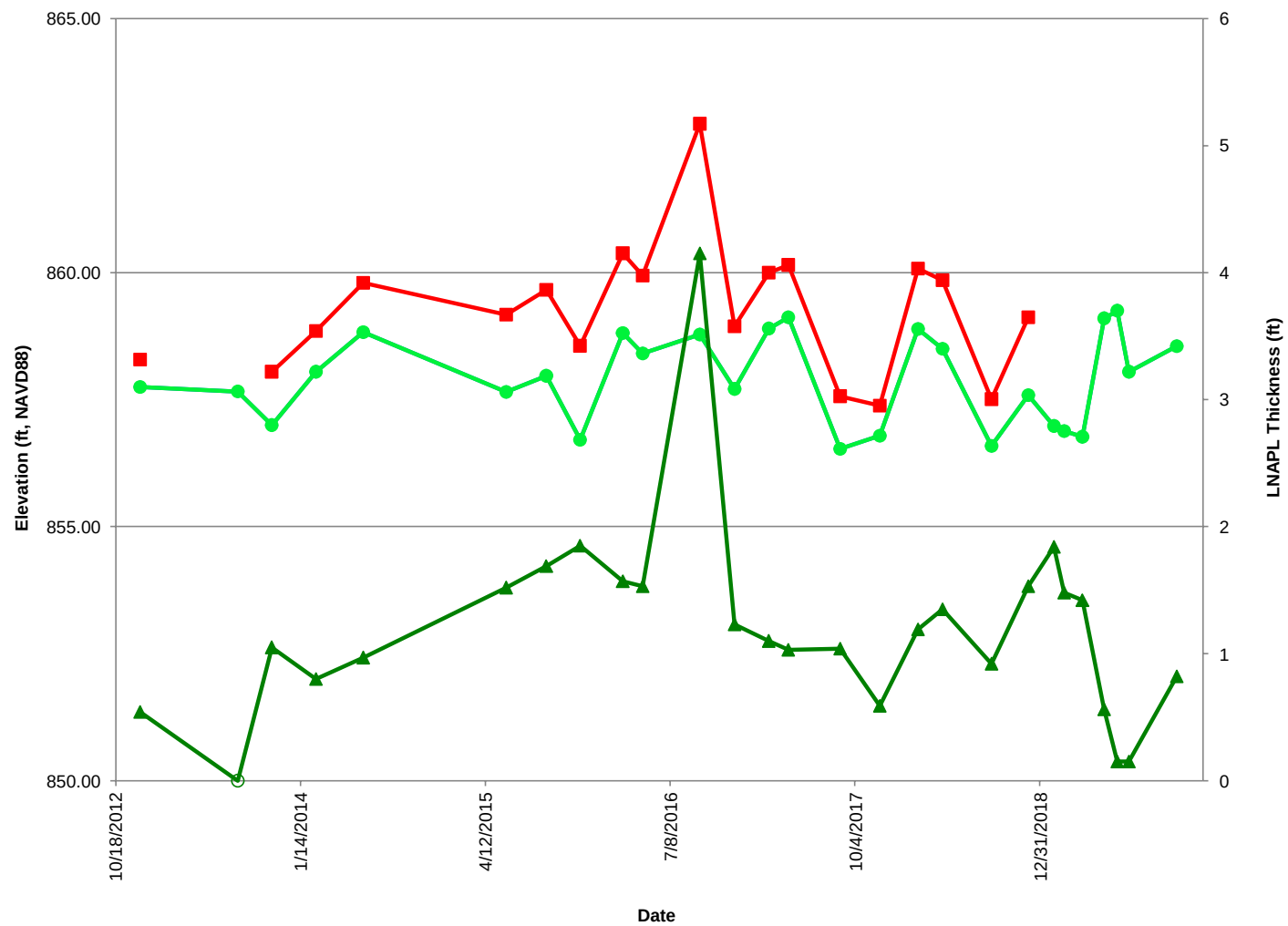
RACER Lansing  
Lansing, MI

**P2-SB-06 DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE

**C**



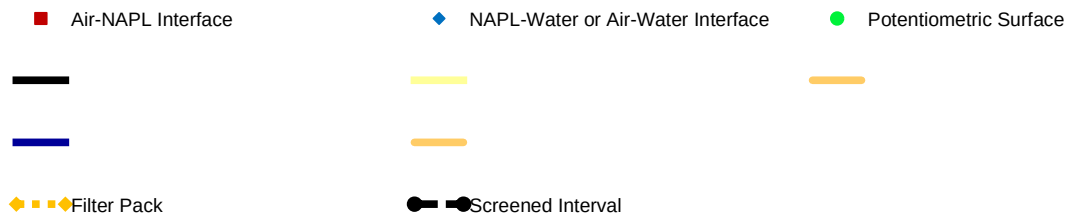
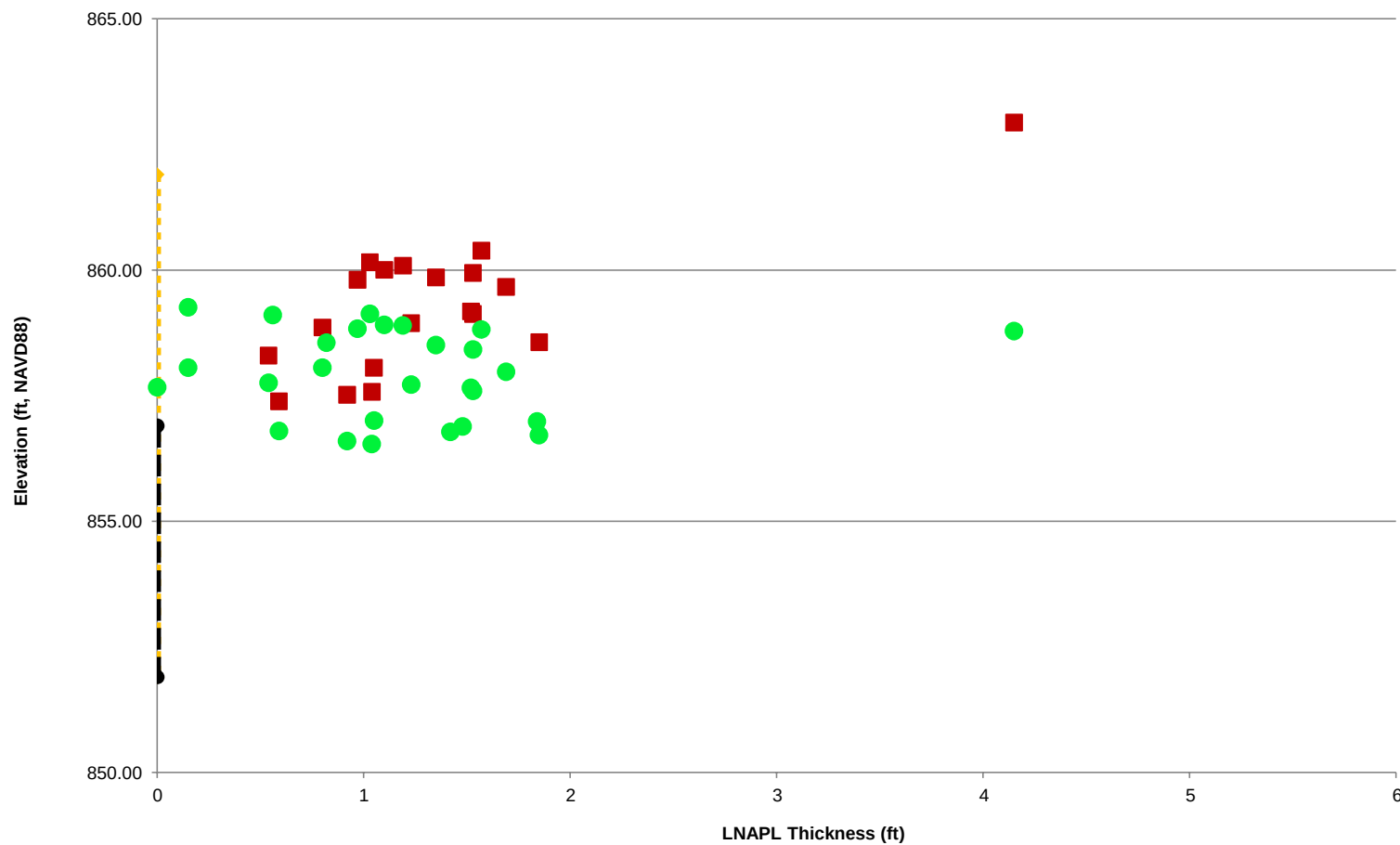
■ Air-NAPL Interface
 ◆ NAPL-Water or Air-Water Interface
 ● Potentiometric Surface
 ▲ NAPL Thickness

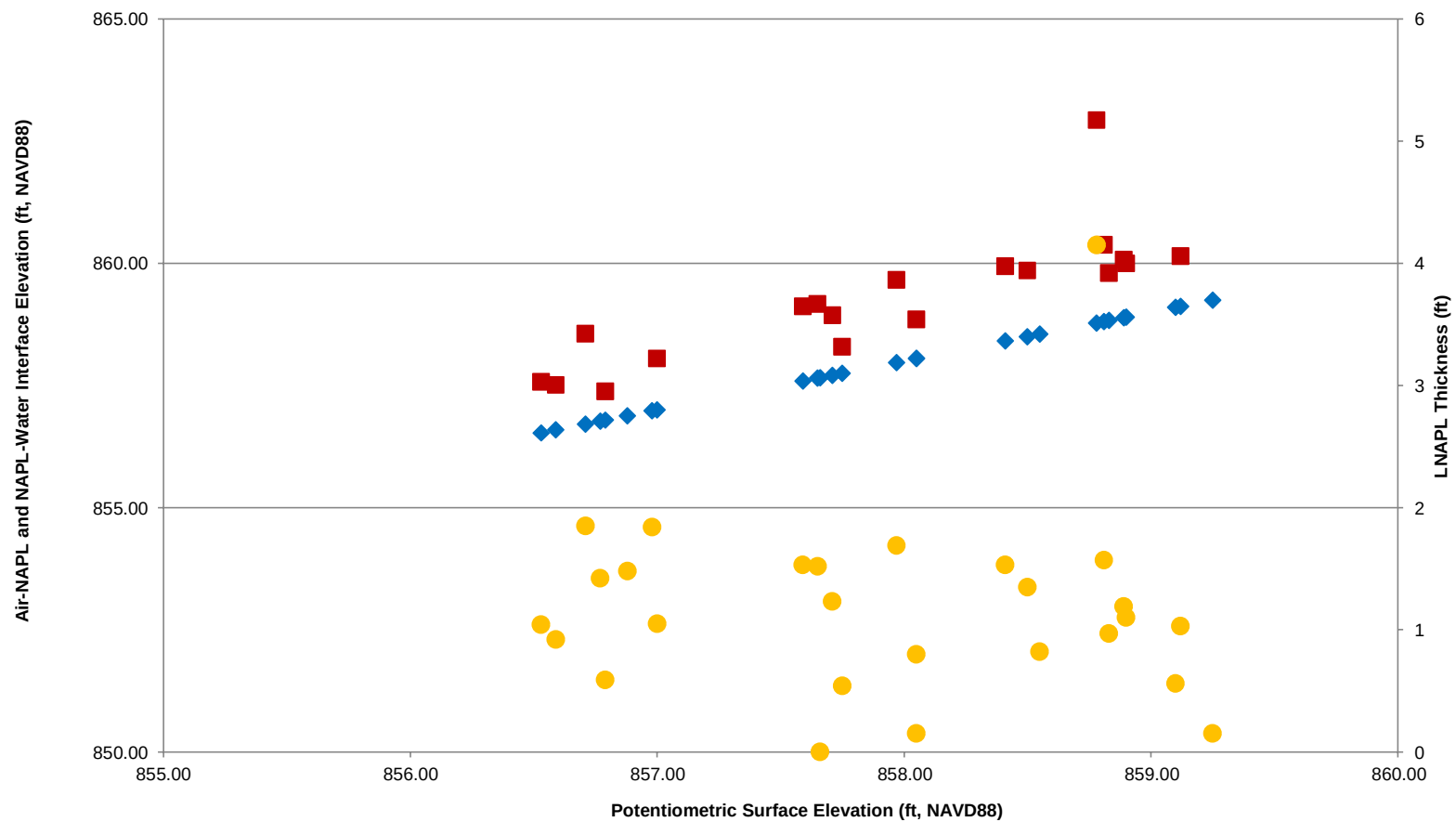
RACER Lansing Plant 2  
Lansing, MI

**P2-SB-37 LNAPL HYDROGRAPH**  
**PERCHED**

**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE  
**A**





■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

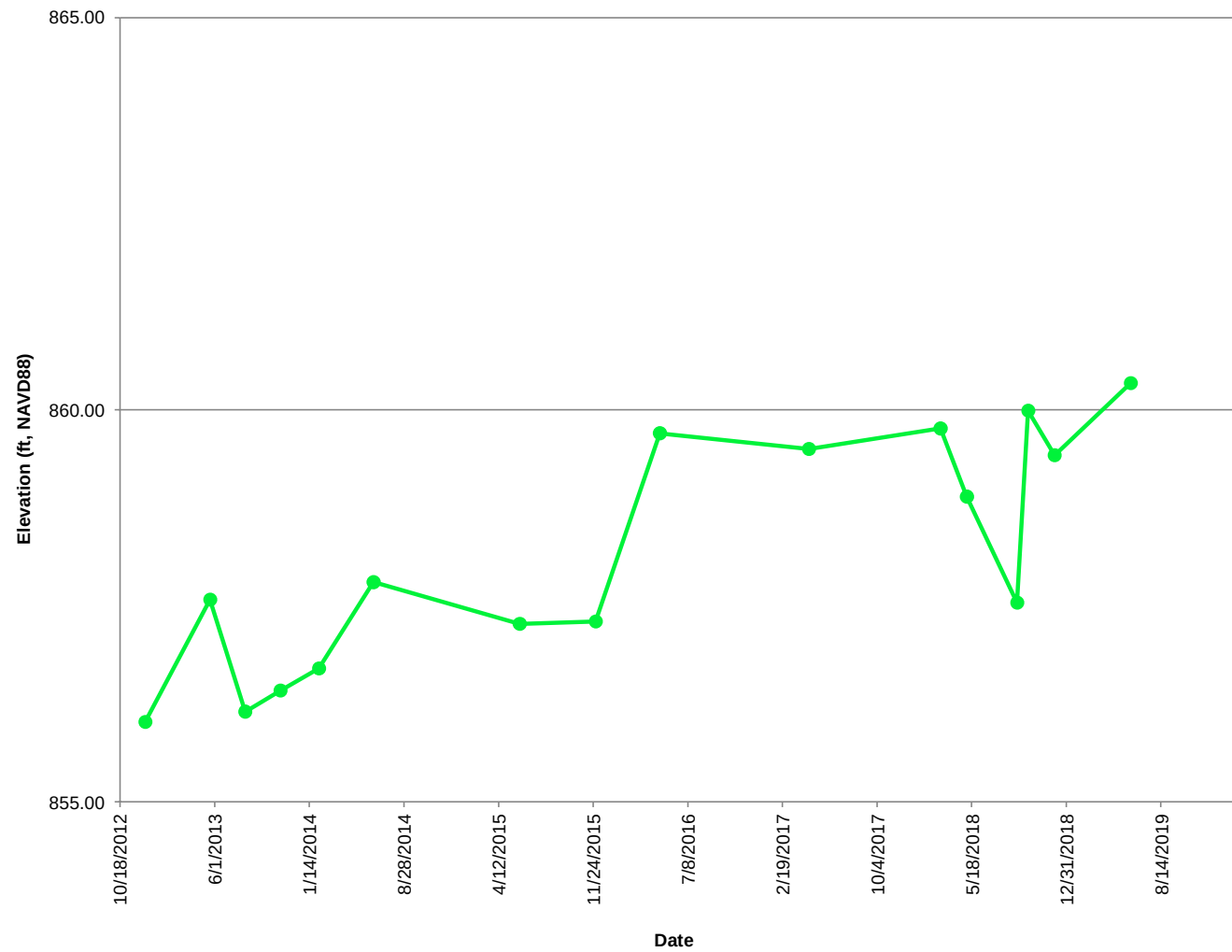
RACER Lansing  
Lansing, MI

**P2-SB-37 DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE

**C**



—●— Potentiometric Surface

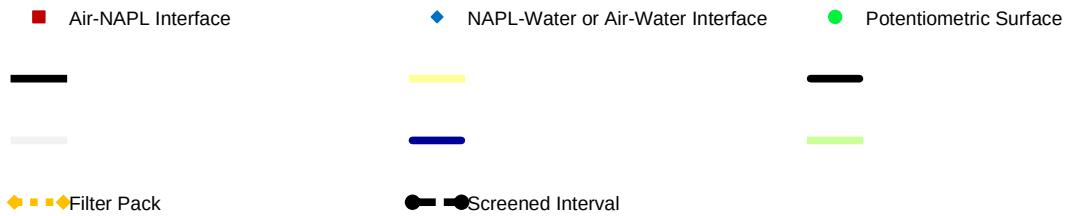
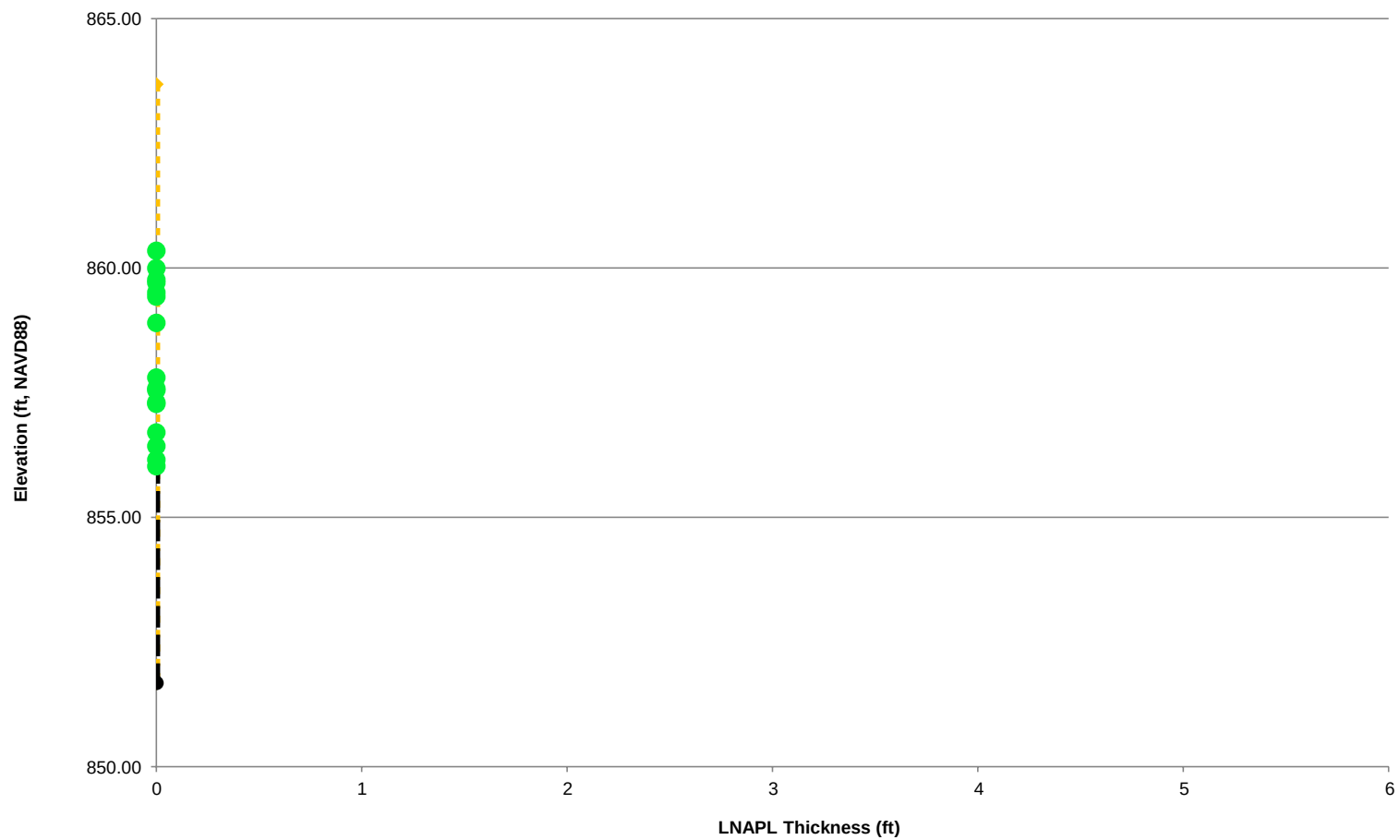
RACER Lansing Plant 3  
Lansing, MI

**P3-SB-07 HYDROGRAPH**  
PERCHED

**ARCADIS** | Design & Consultancy  
for natural and built assets

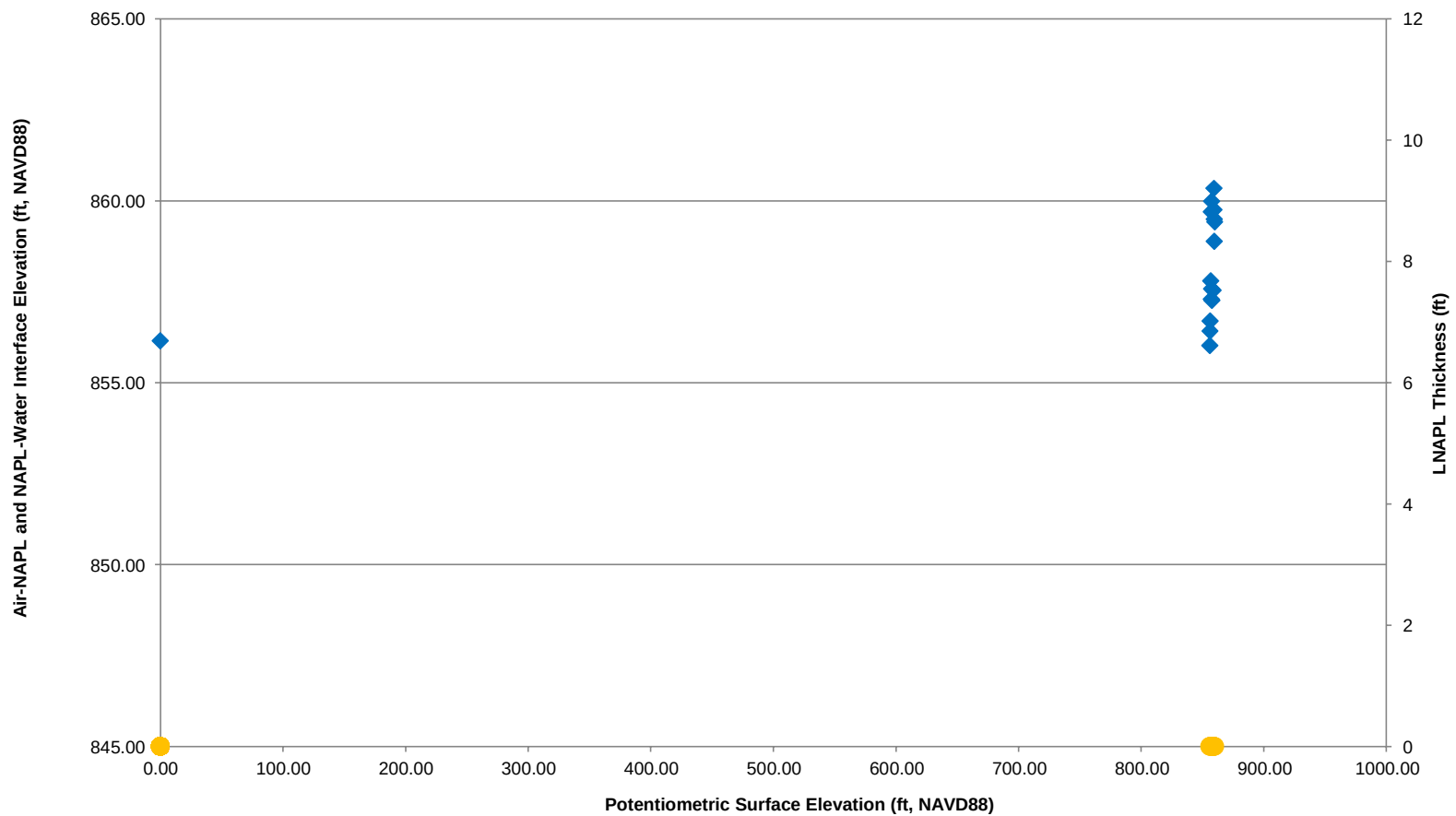
FIGURE

**A**



|                                                                    |             |
|--------------------------------------------------------------------|-------------|
| RACER Lansing<br>Lansing, MI                                       |             |
| P3-SB-07 DIAGNOSTIC GAUGE PLOT                                     |             |
| ARCADIS<br>Design & Consultancy<br>for natural and<br>built assets | FIGURE<br>B |





■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

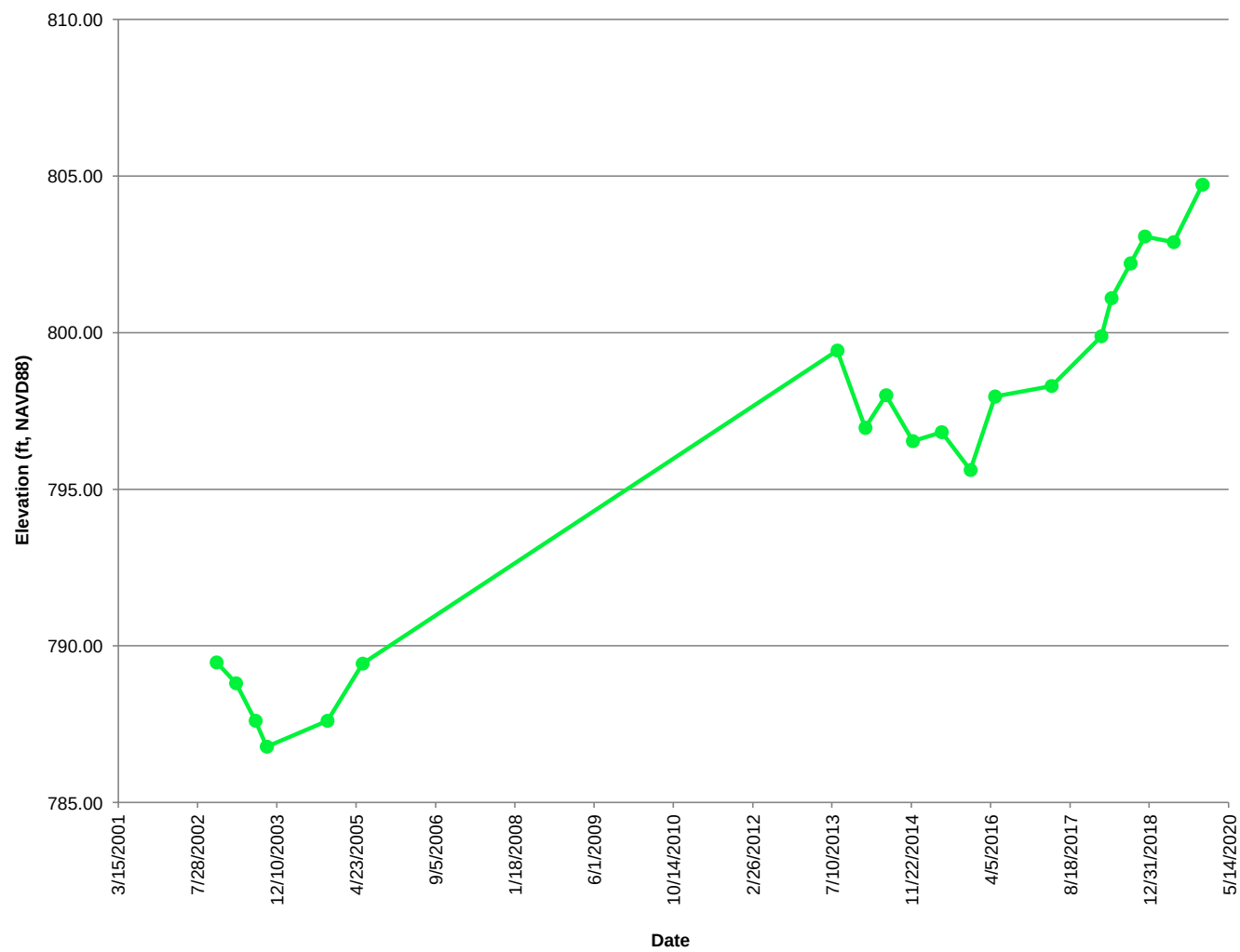
RACER Lansing  
Lansing, MI

**P3-SB-07 DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE

**C**



—●— Potentiometric Surface

RACER Lansing Plant 3  
Lansing, MI

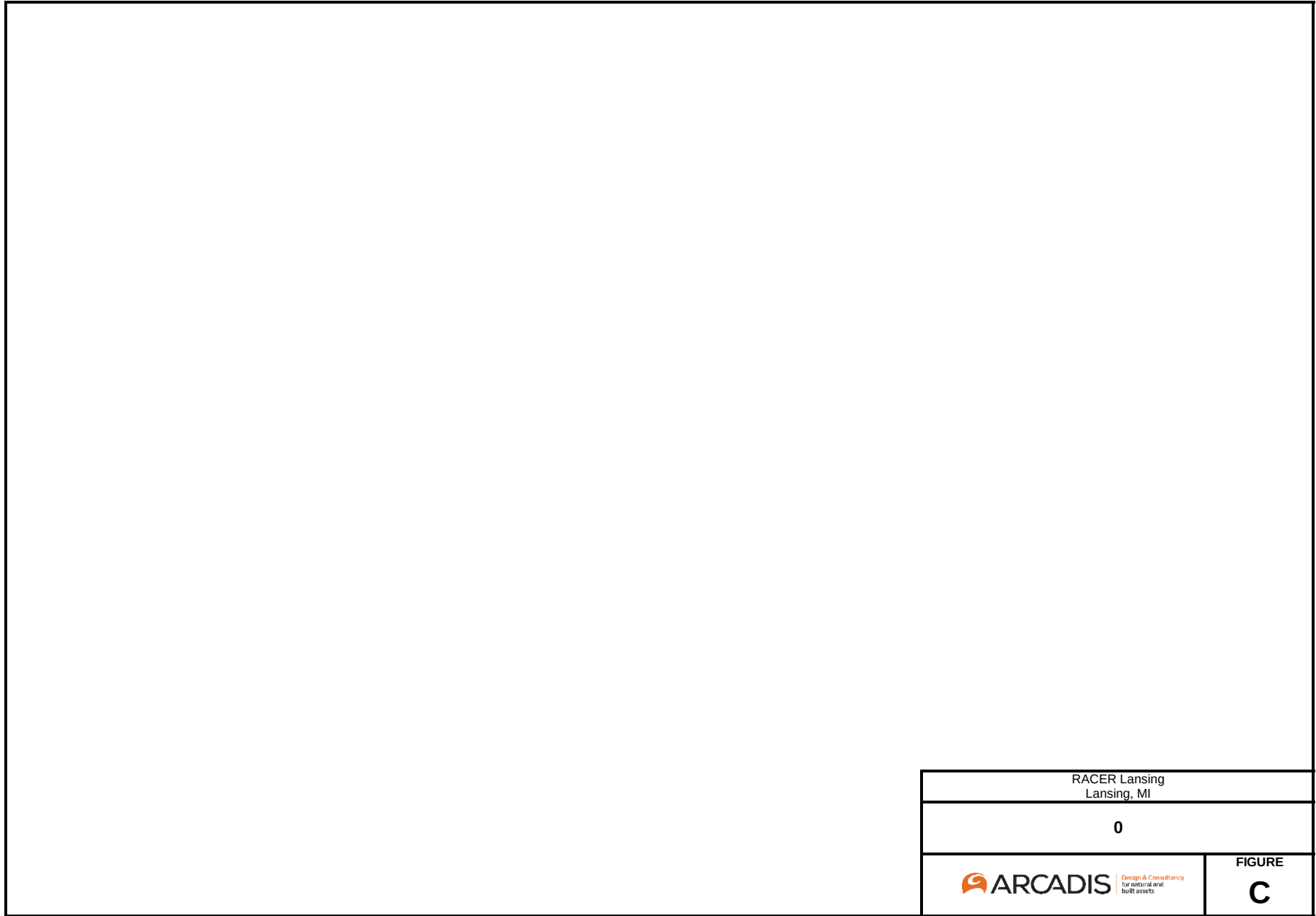
**MW-02-04(3) HYDROGRAPH**  
DEEP OVERBURDEN/WEATHERED BEDROCK

**ARCADIS** Design & Consultancy  
for natural and built assets

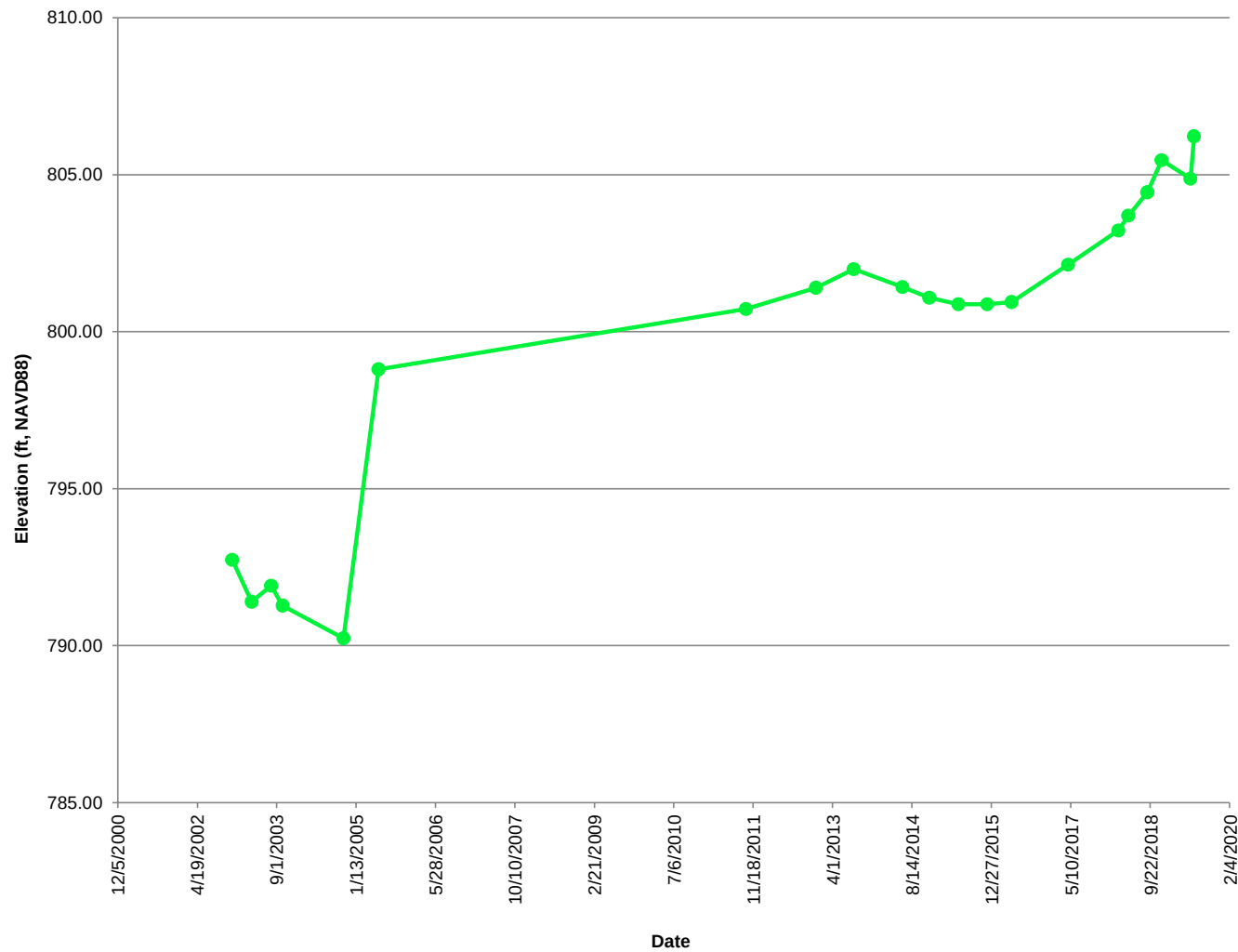
FIGURE

**A**

|                                                                                                                                                                |                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                   |                           |
| 0                                                                                                                                                              |                           |
|  <b>ARCADIS</b>   Design & Consultancy<br>for natural and<br>built assets | <b>FIGURE</b><br><b>B</b> |



|                                                                                                                                                                |                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                   |                           |
| 0                                                                                                                                                              |                           |
|  <b>ARCADIS</b>   Design & Consultancy<br>for natural and<br>built assets | <b>FIGURE</b><br><b>C</b> |



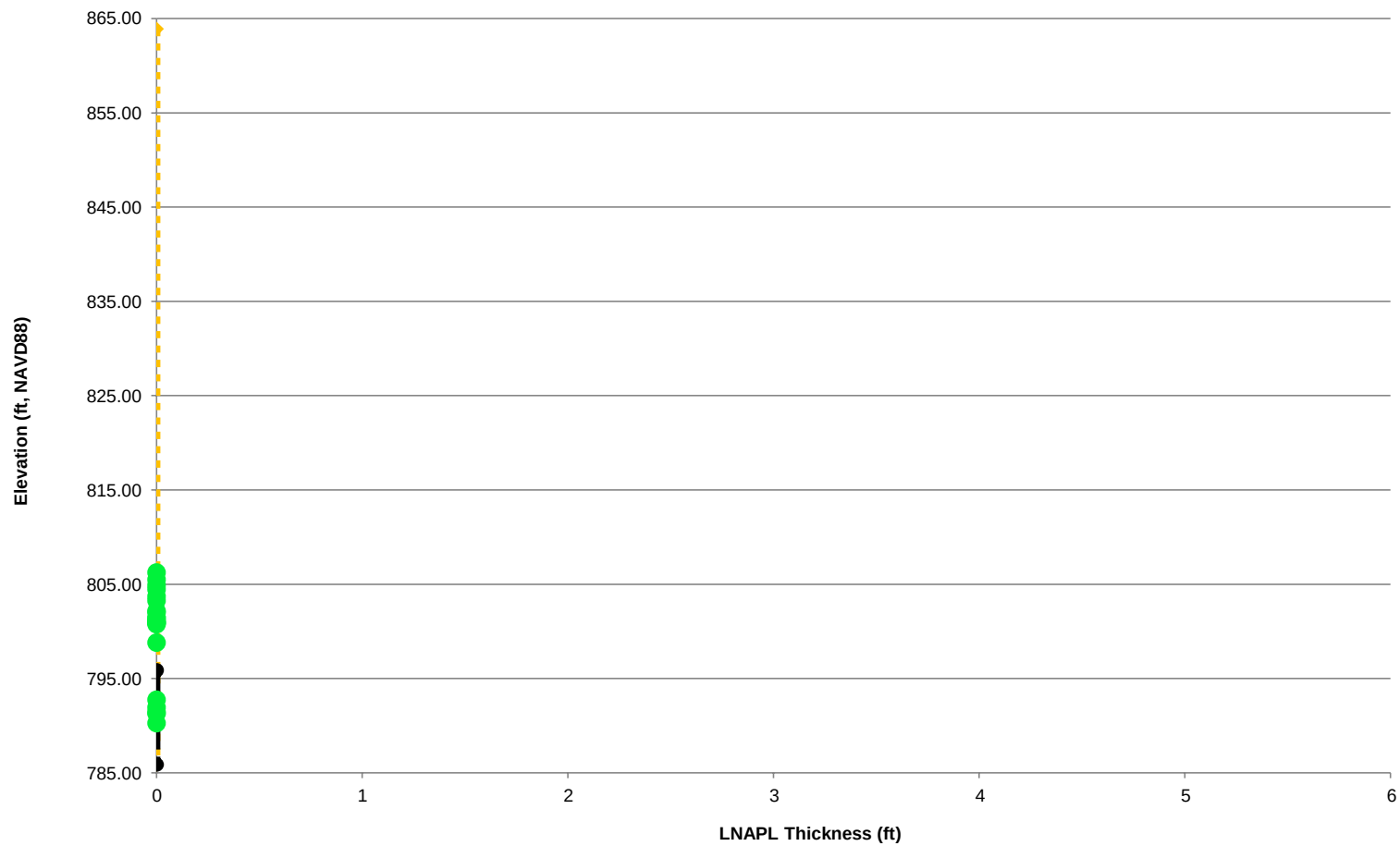
—●— Potentiometric Surface

RACER Lansing Plant 3  
Lansing, MI

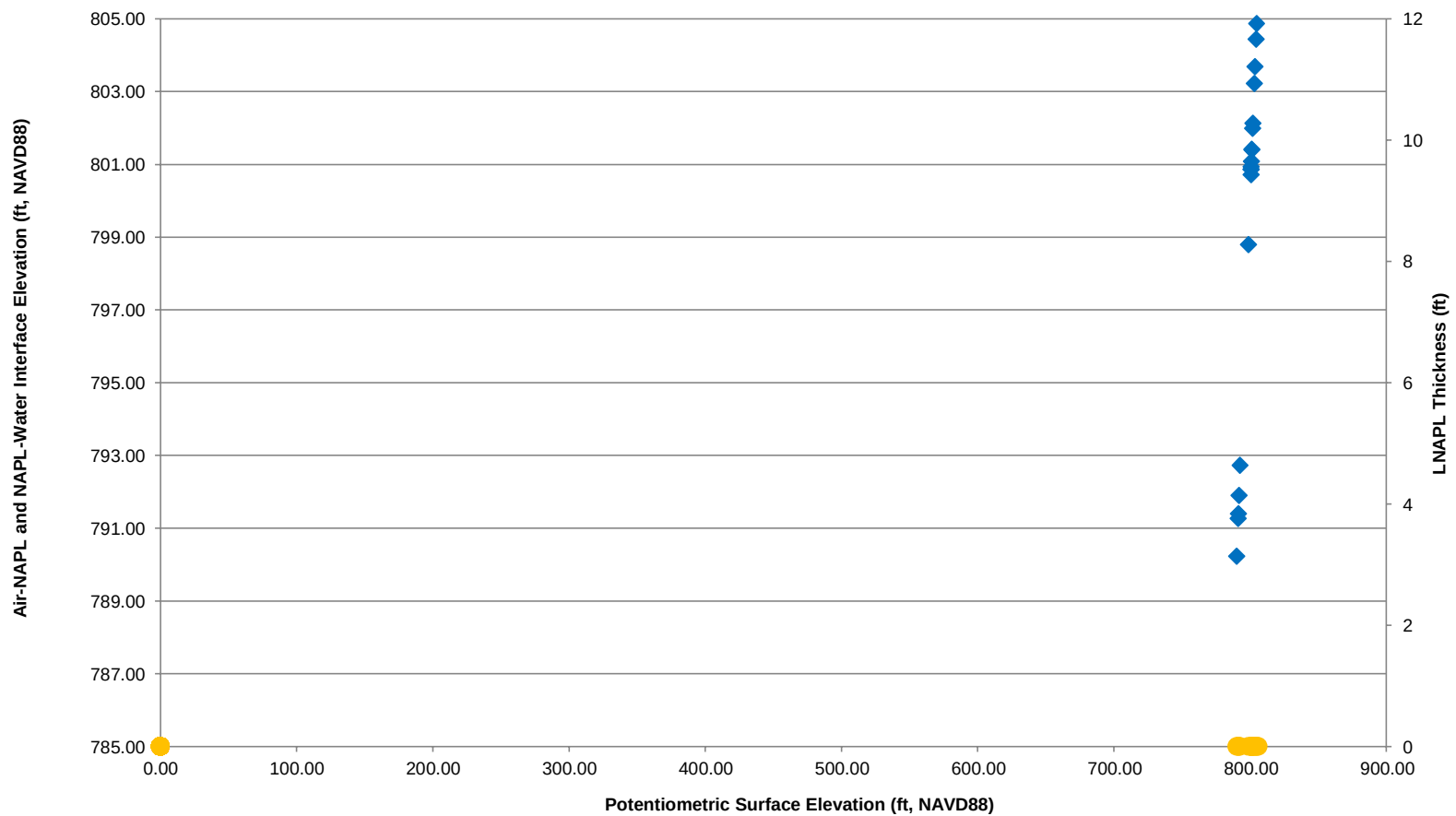
**MW-91-2 HYDROGRAPH**  
**BEDROCK**

 **ARCADIS** Design & Consultancy  
for natural and  
built assets

FIGURE  
**A**



|                                                                                                      |                                                         |
|------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| RACER Lansing<br>Lansing, MI                                                                         |                                                         |
| MW-91-2 DIAGNOSTIC GAUGE PLOT                                                                        |                                                         |
|  <b>ARCADIS</b> | Design & Consultancy<br>for natural and<br>built assets |
| FIGURE<br><b>B</b>                                                                                   |                                                         |



■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

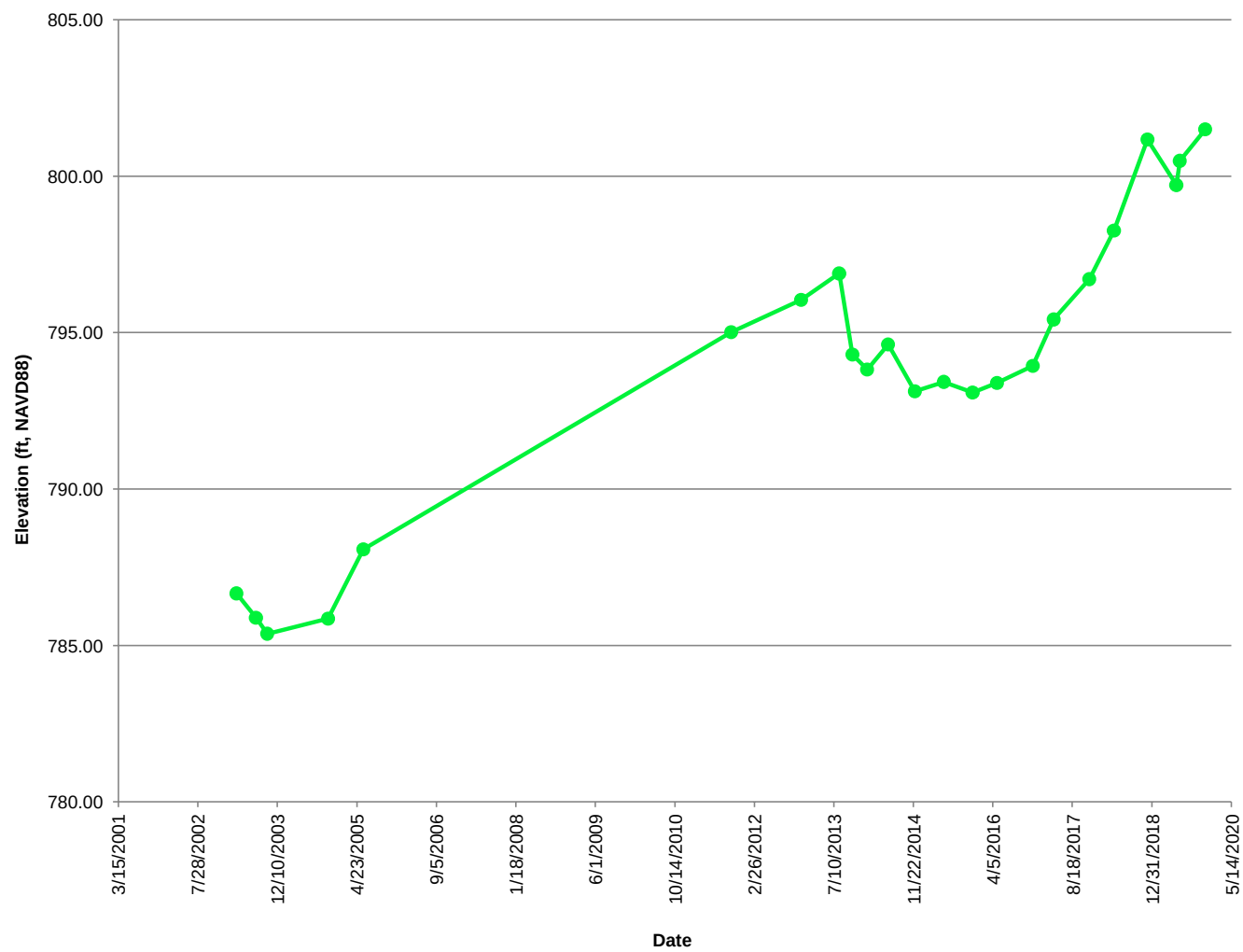
RACER Lansing  
Lansing, MI

**MW-91-2 DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE

**C**



RACER Lansing Plant 3  
Lansing, MI

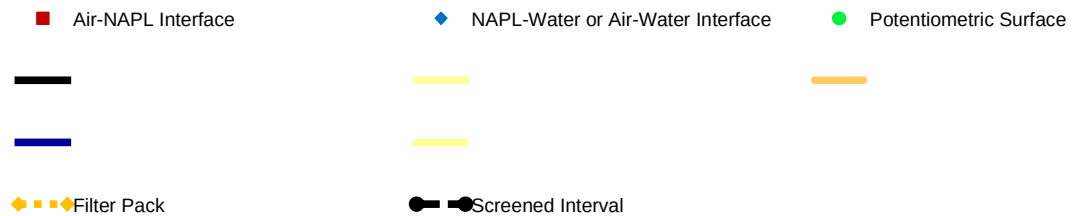
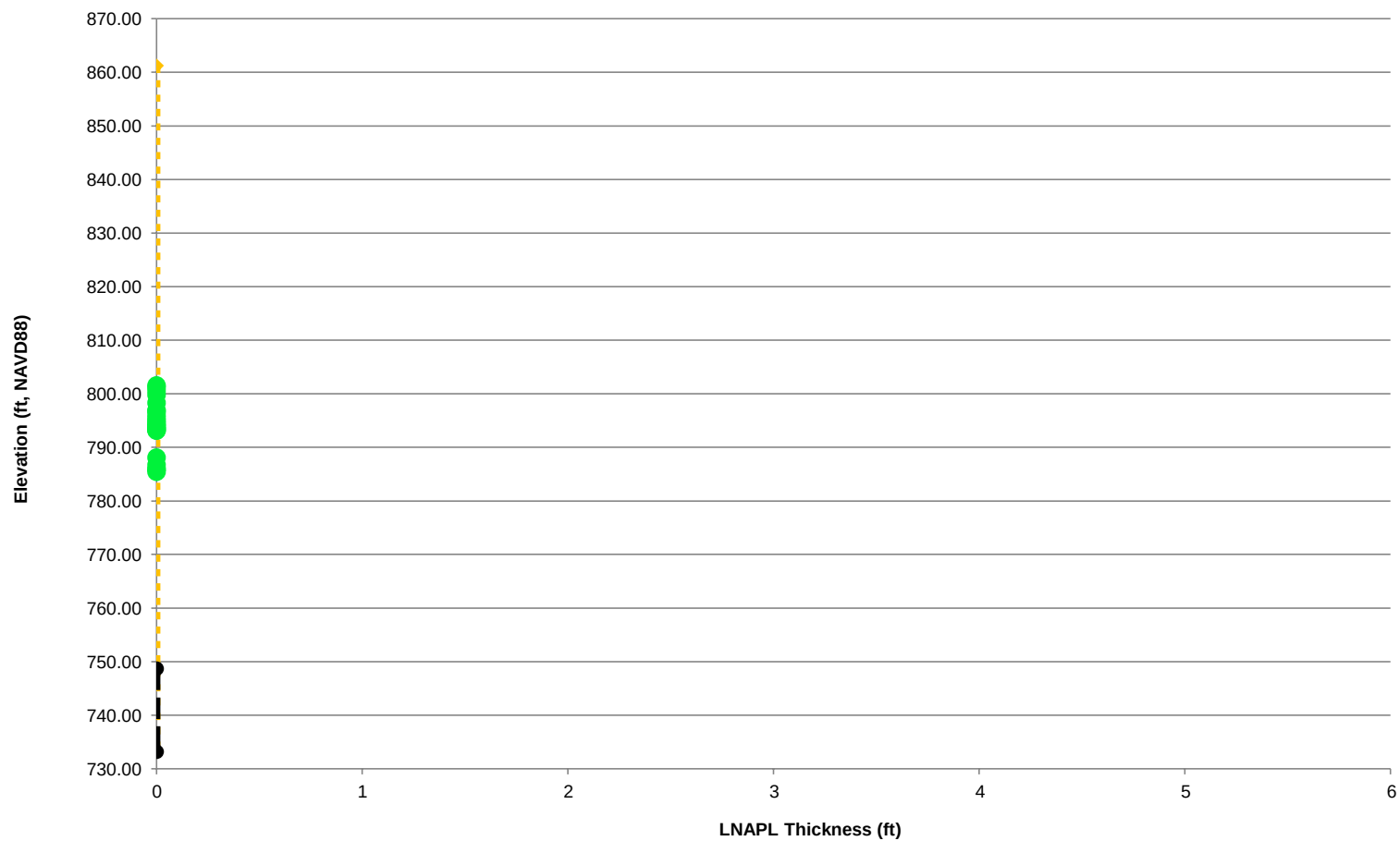
**MW-91-5 HYDROGRAPH**  
**BEDROCK**



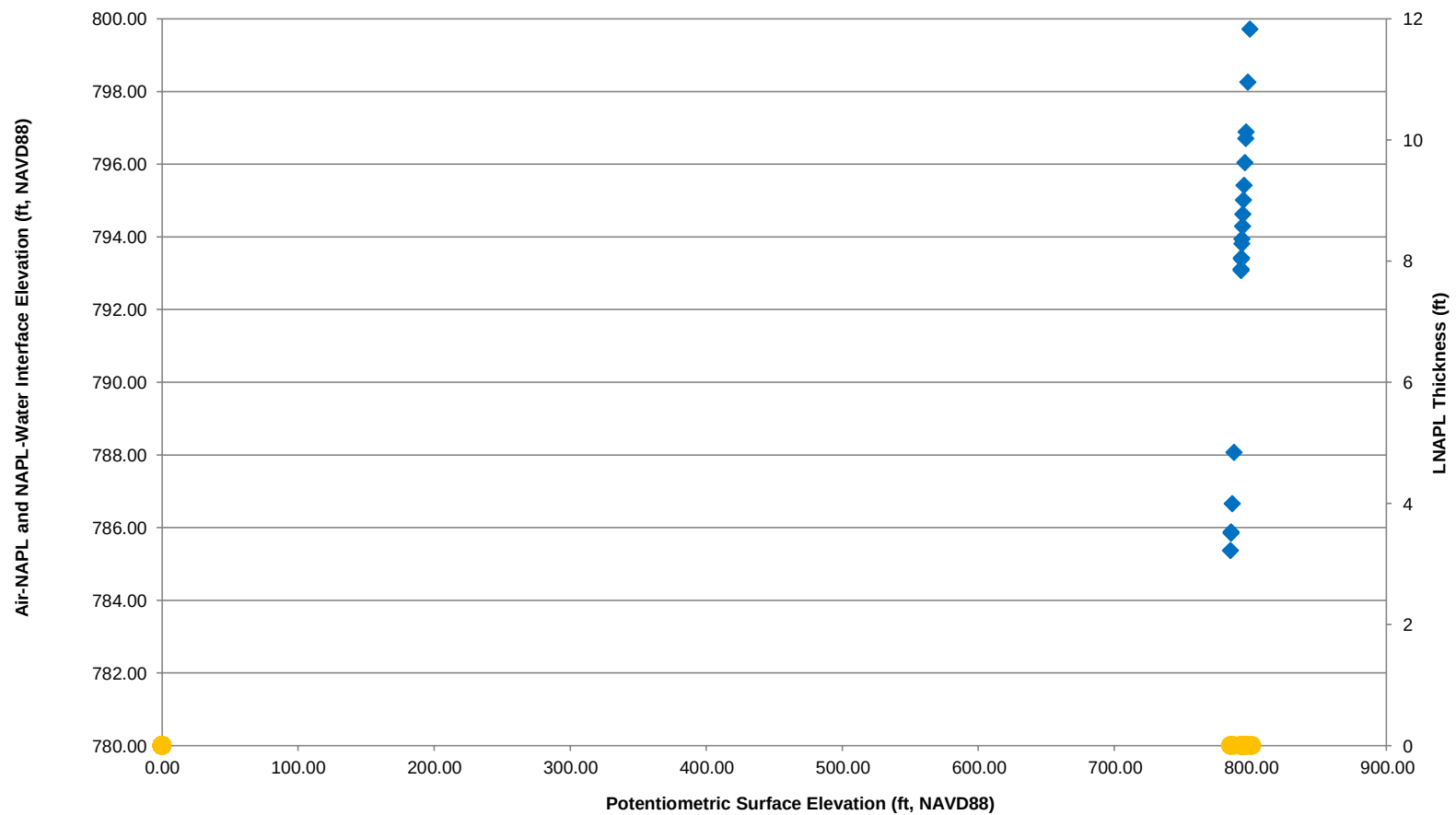
FIGURE

**A**





|                               |                           |
|-------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI  |                           |
| MW-91-5 DIAGNOSTIC GAUGE PLOT |                           |
|                               | <b>FIGURE</b><br><b>B</b> |



■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

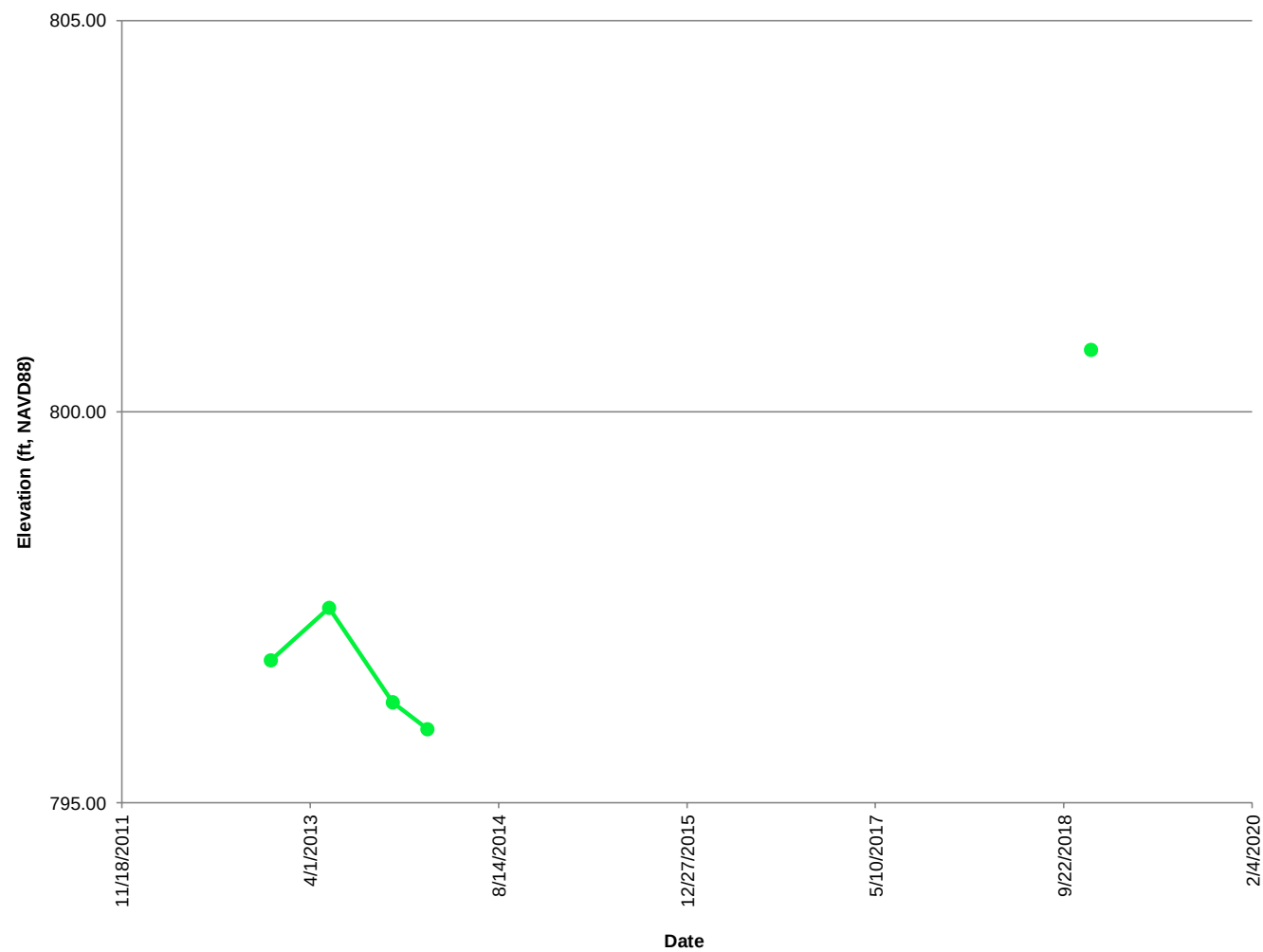
RACER Lansing  
Lansing, MI

**MW-91-5 DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE

**C**



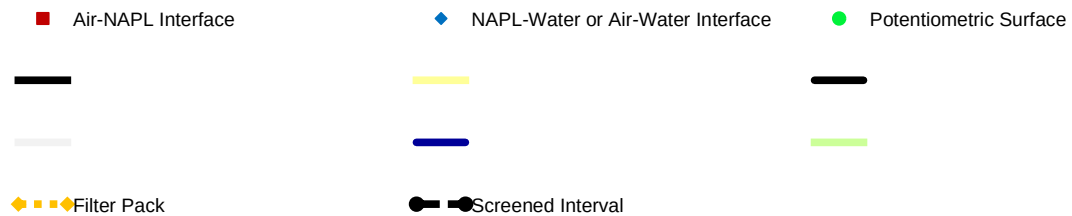
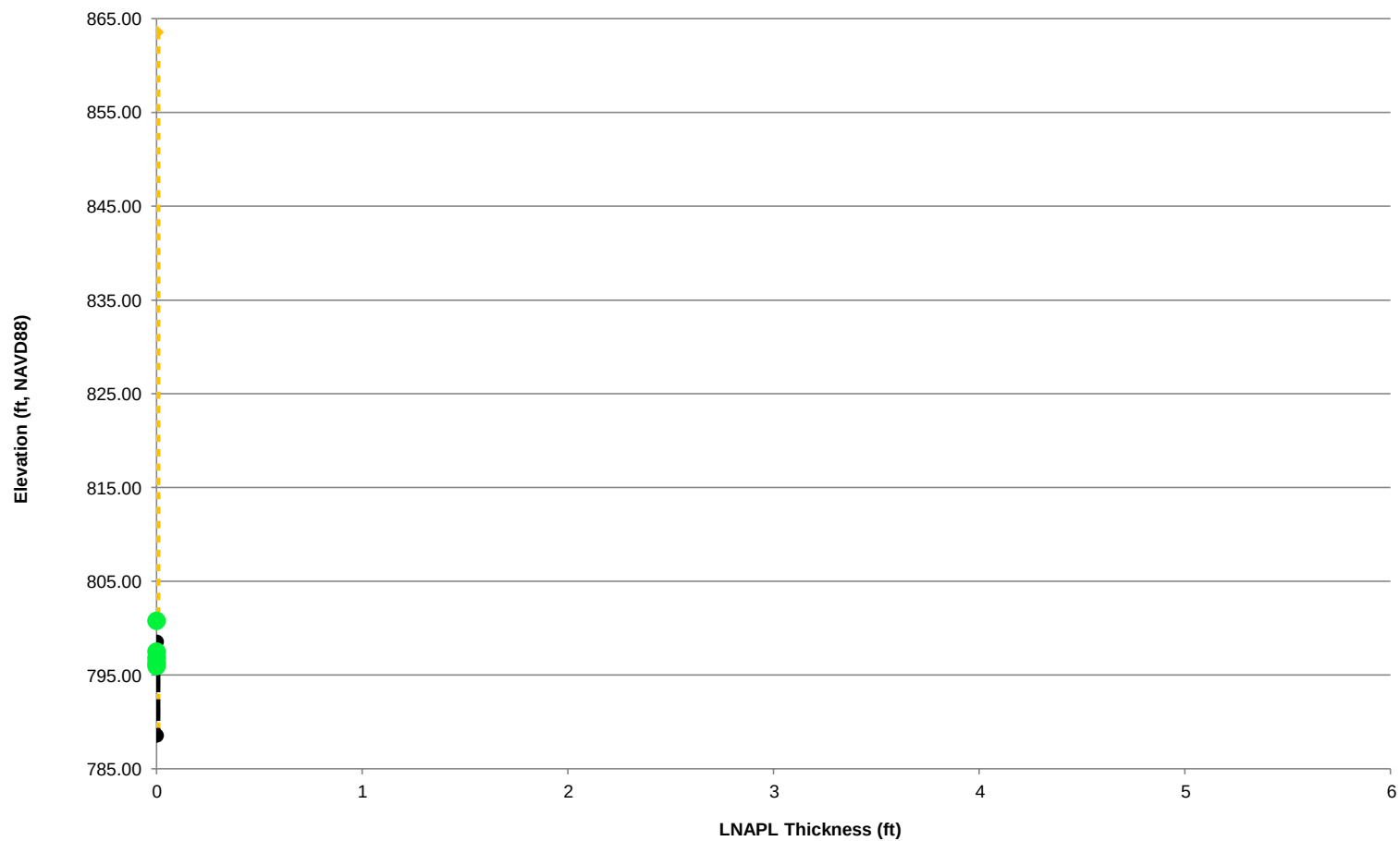
—●— Potentiometric Surface

RACER Lansing Plant 3  
Lansing, MI

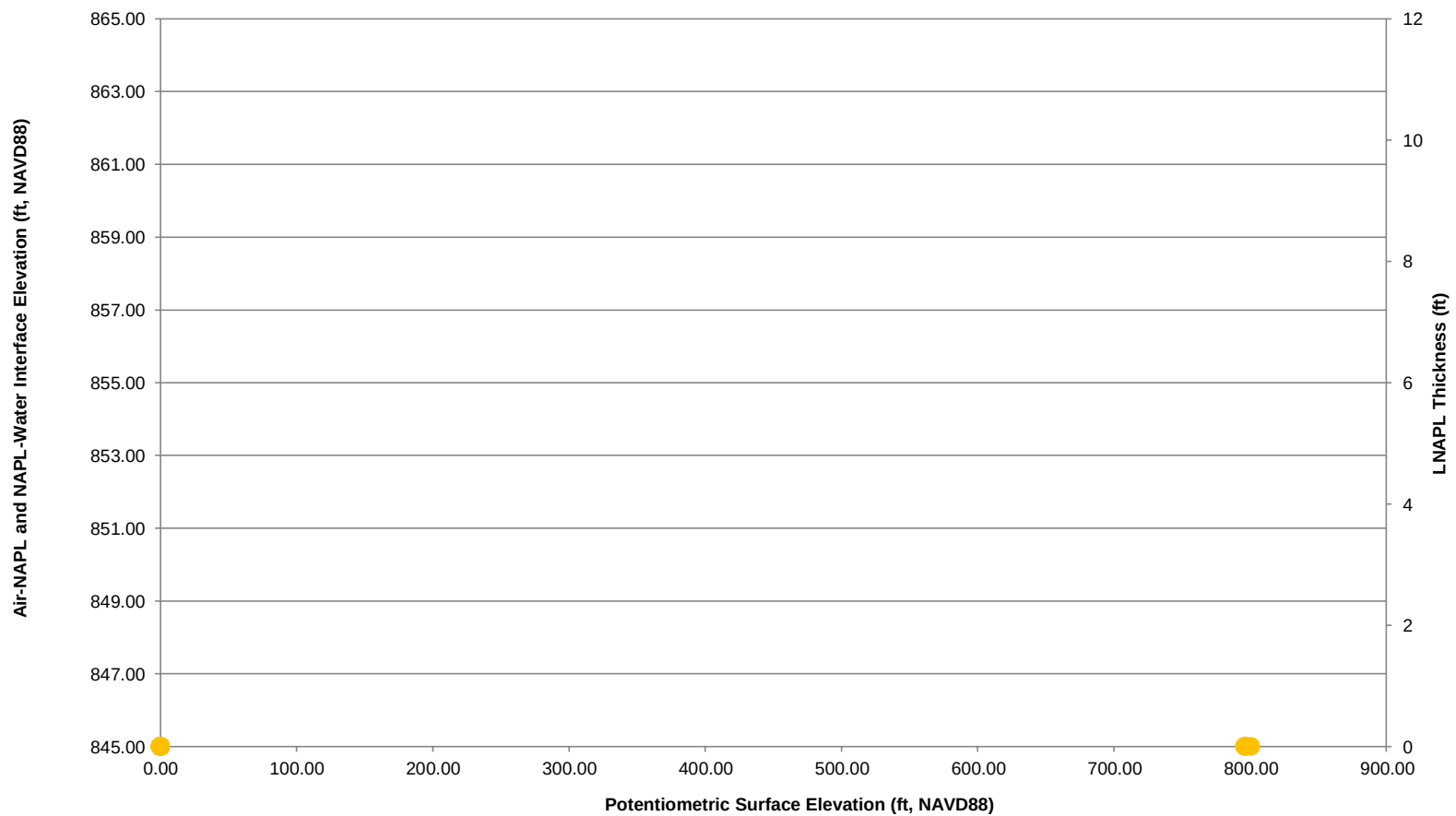
**MW-93-1 HYDROGRAPH**  
**BEDROCK**

 **ARCADIS** | Design & Consultancy  
for natural and built assets

FIGURE  
**A**



|                                                                    |                    |
|--------------------------------------------------------------------|--------------------|
| RACER Lansing<br>Lansing, MI                                       |                    |
| MW-93-1 DIAGNOSTIC GAUGE PLOT                                      |                    |
| ARCADIS<br>Design & Consultancy<br>for natural and<br>built assets | FIGURE<br><b>B</b> |



■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

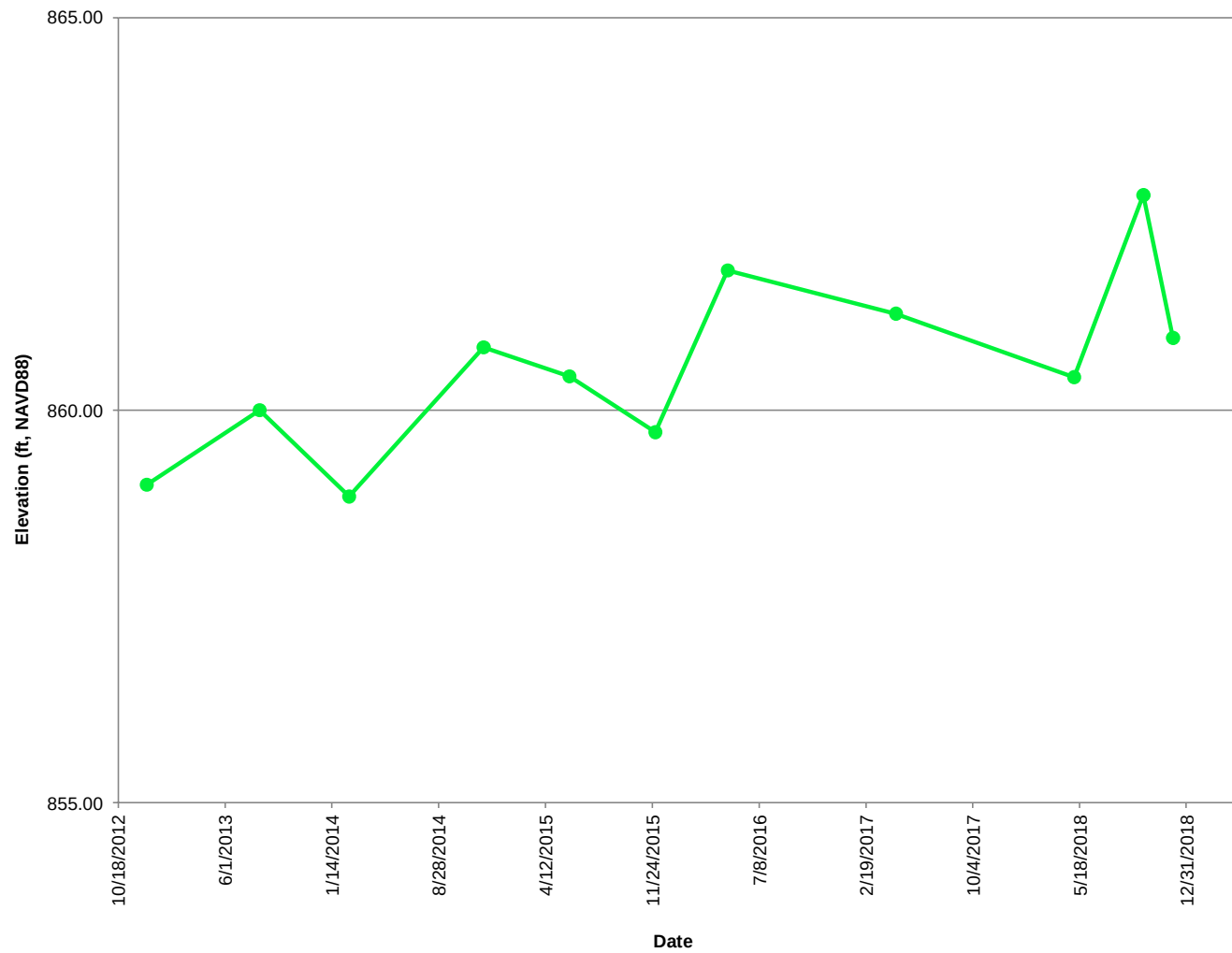
RACER Lansing  
Lansing, MI

**MW-93-1 DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE

**C**



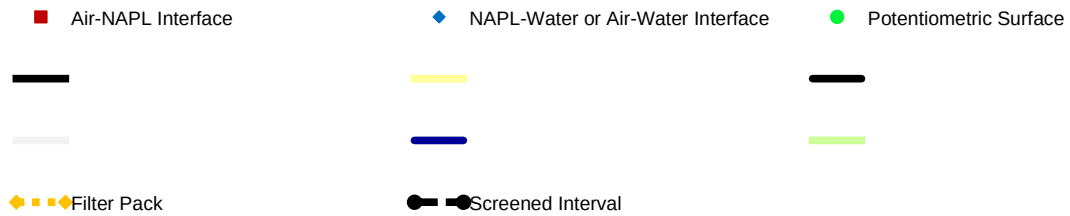
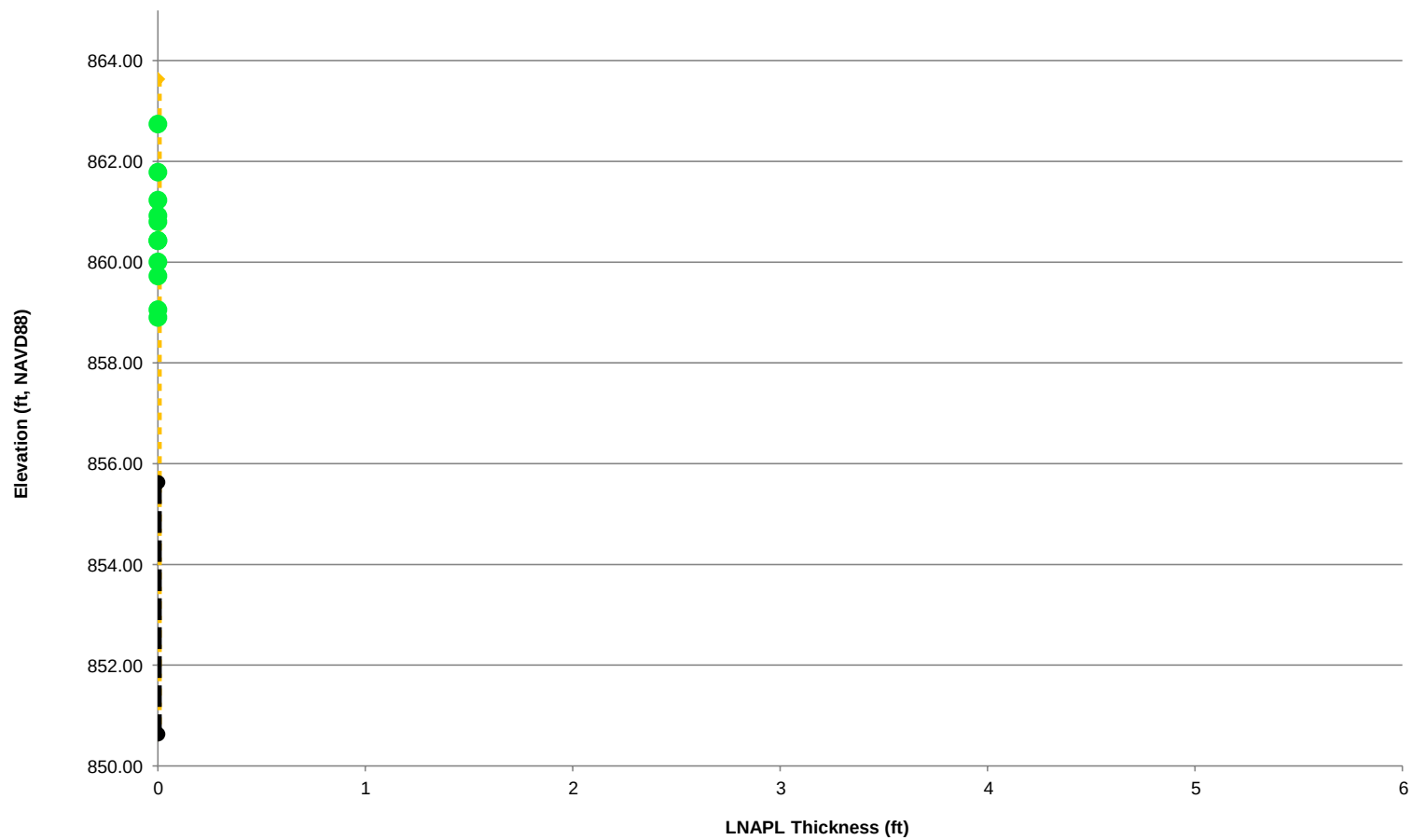
—●— Potentiometric Surface

RACER Lansing Plant 3  
Lansing, MI

**P3-SB-28 HYDROGRAPH**  
PERCHED

**ARCADIS** Design & Consultancy  
for natural and built assets

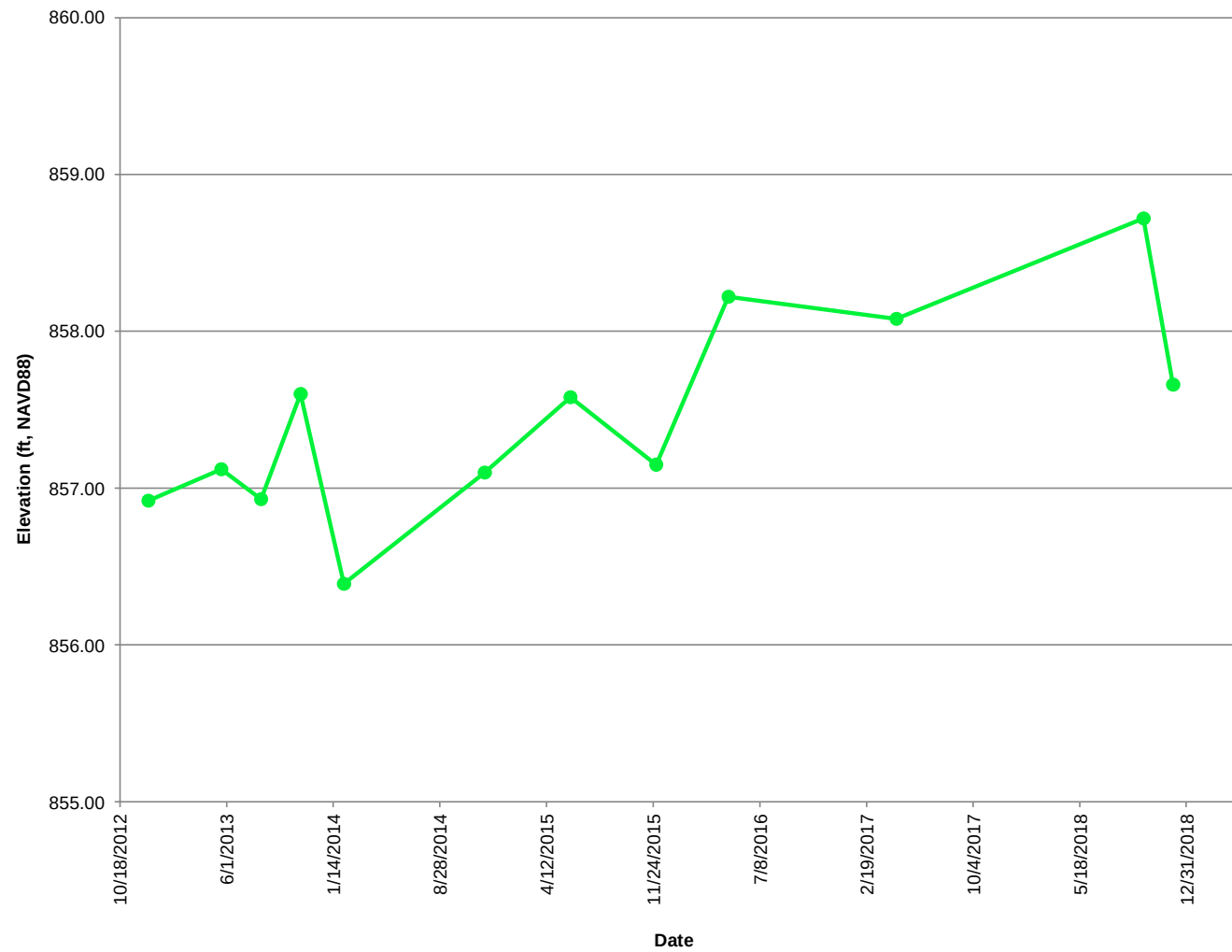
FIGURE  
**A**



|                                                                                                                                                                                      |                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                         |                                                                |
| <b>P3-SB-28 DIAGNOSTIC GAUGE PLOT</b>                                                                                                                                                |                                                                |
|  <b>ARCADIS</b><br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><span style="font-size: 2em;"><b>B</b></span> |







—●— Potentiometric Surface

RACER Lansing Plant 3  
Lansing, MI

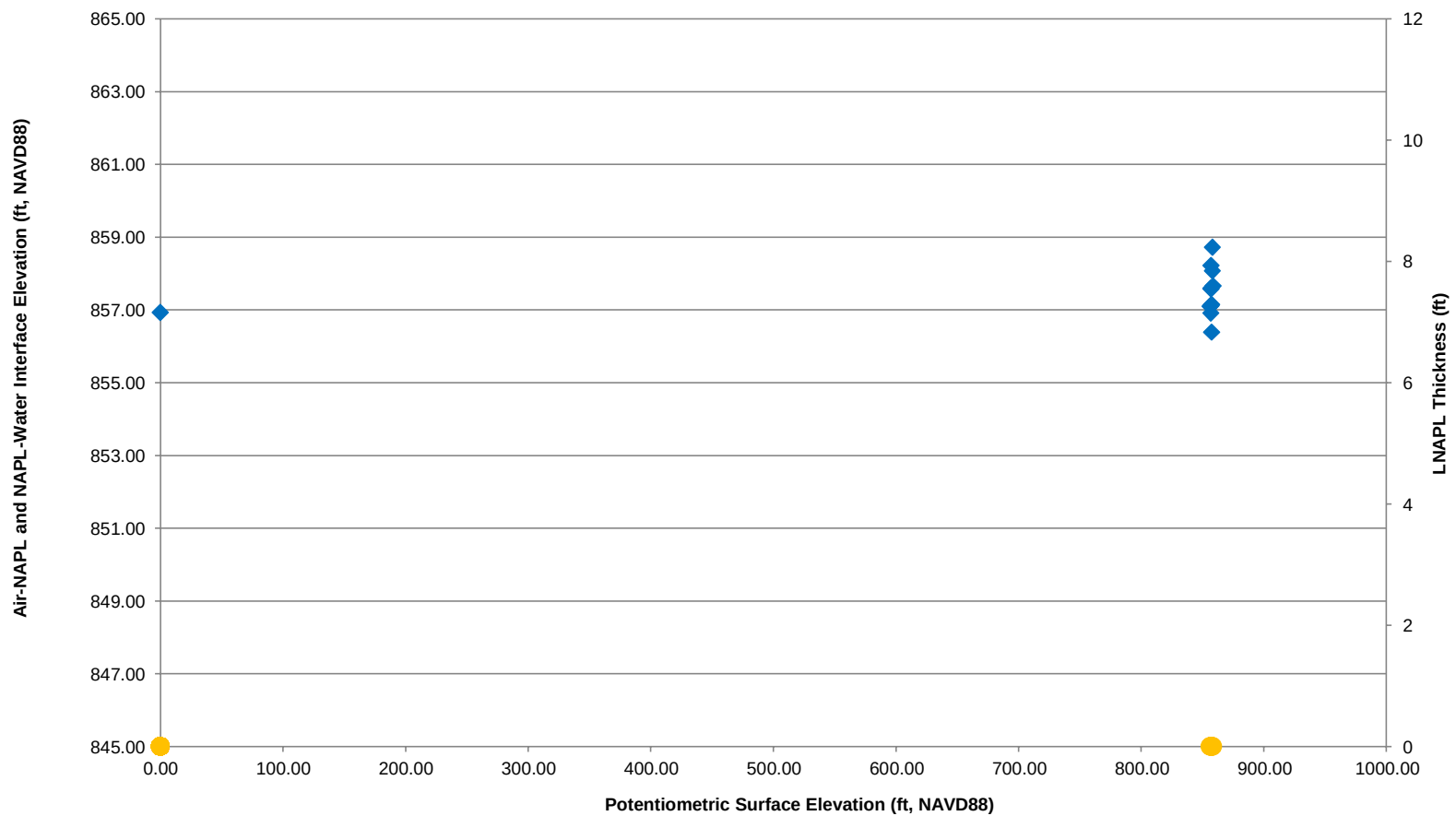
**P3-SB-07 HYDROGRAPH**  
PERCHED

 **ARCADIS** | Design & Consultancy  
for natural and built assets

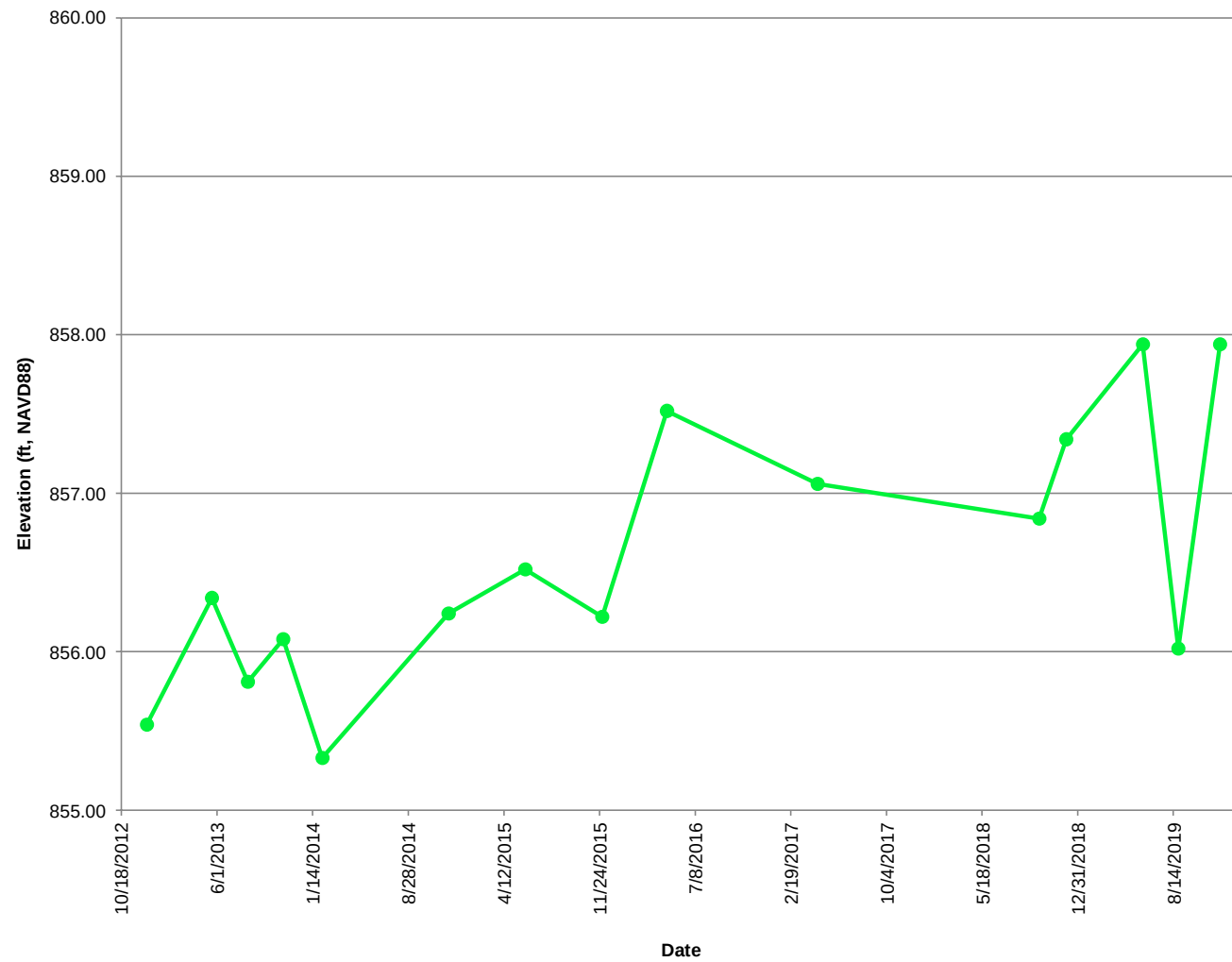
FIGURE

**A**





|                                                                                                                                                                                      |                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                         |                           |
| <b>P3-SB-07 DIAGNOSTIC GAUGE PLOT</b>                                                                                                                                                |                           |
|  <b>ARCADIS</b><br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><b>C</b> |



—●— Potentiometric Surface

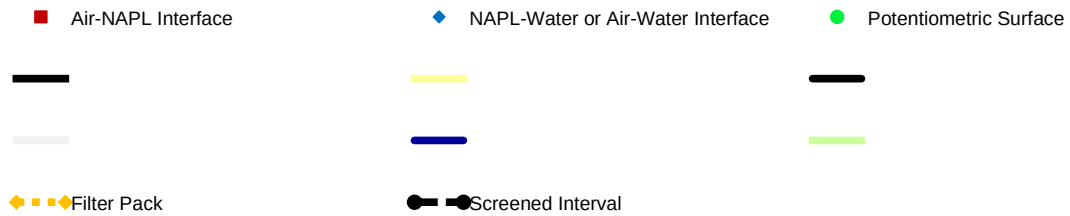
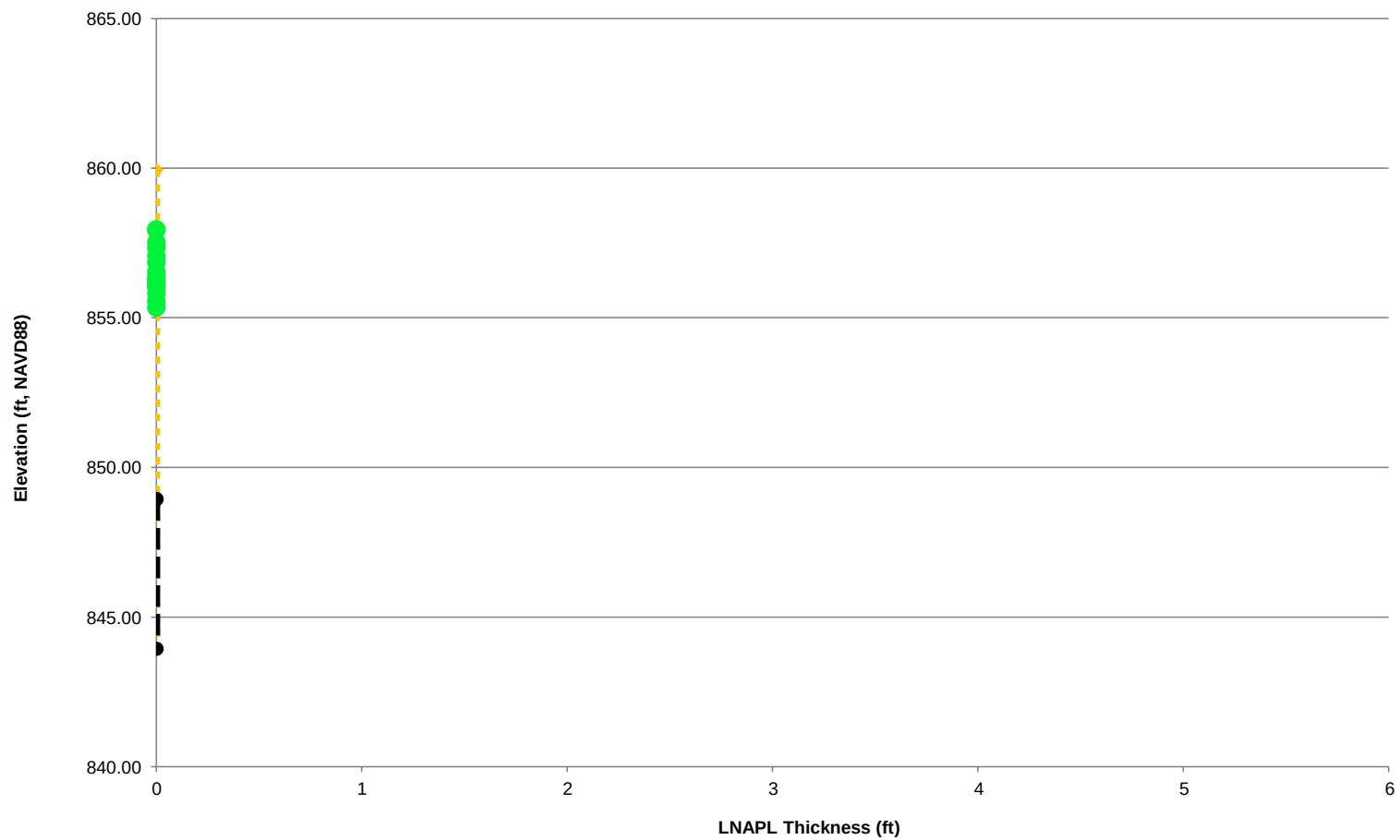
RACER Lansing Plant 3  
Lansing, MI

**UNK-15 HYDROGRAPH**  
PERCHED

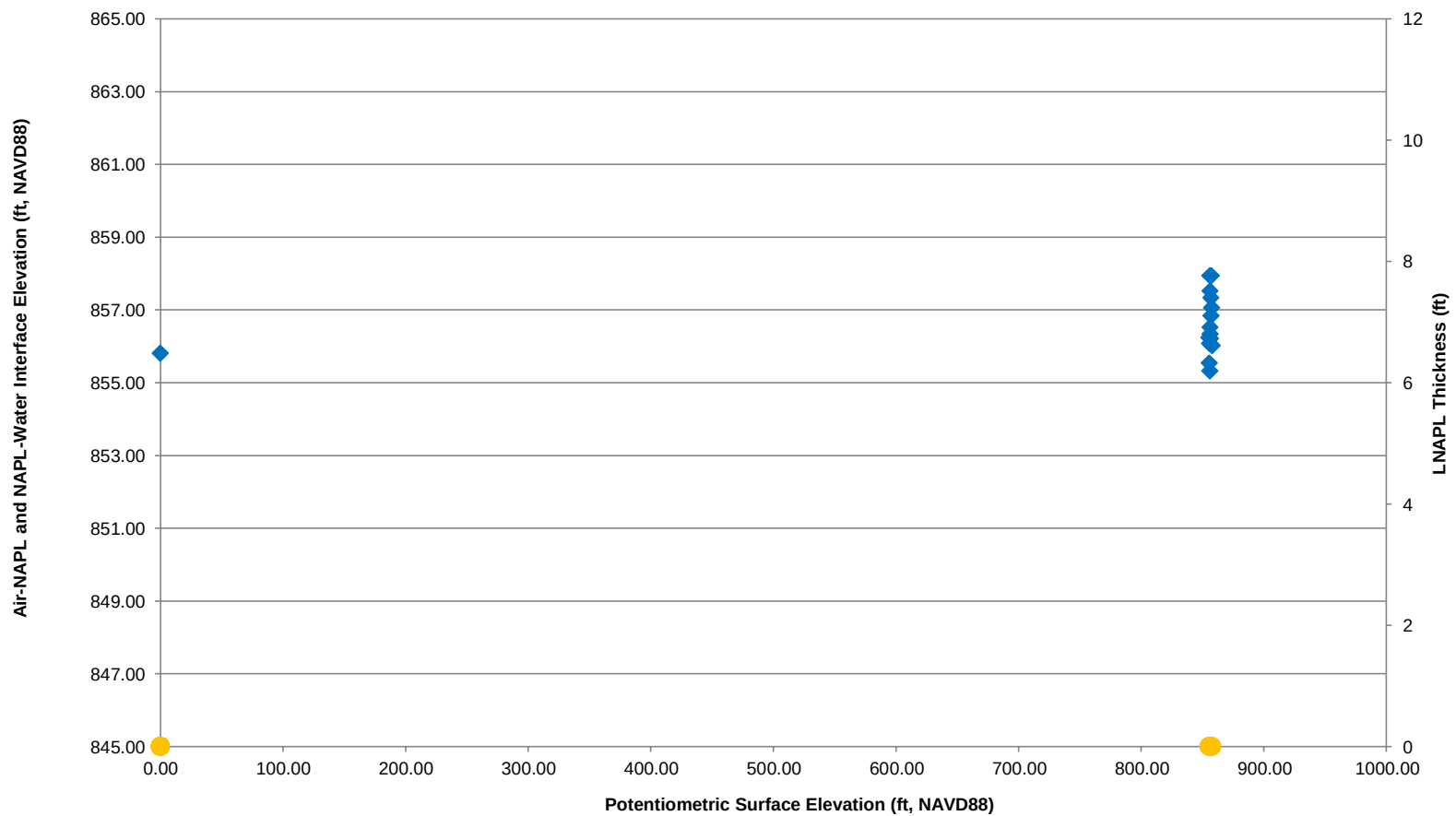
**ARCADIS** | Design & Consultancy  
for natural and built assets

FIGURE

**A**



|                                                                    |                    |
|--------------------------------------------------------------------|--------------------|
| RACER Lansing<br>Lansing, MI                                       |                    |
| UNK-15 DIAGNOSTIC GAUGE PLOT                                       |                    |
| ARCADIS<br>Design & Consultancy<br>for natural and<br>built assets | FIGURE<br><b>B</b> |



■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

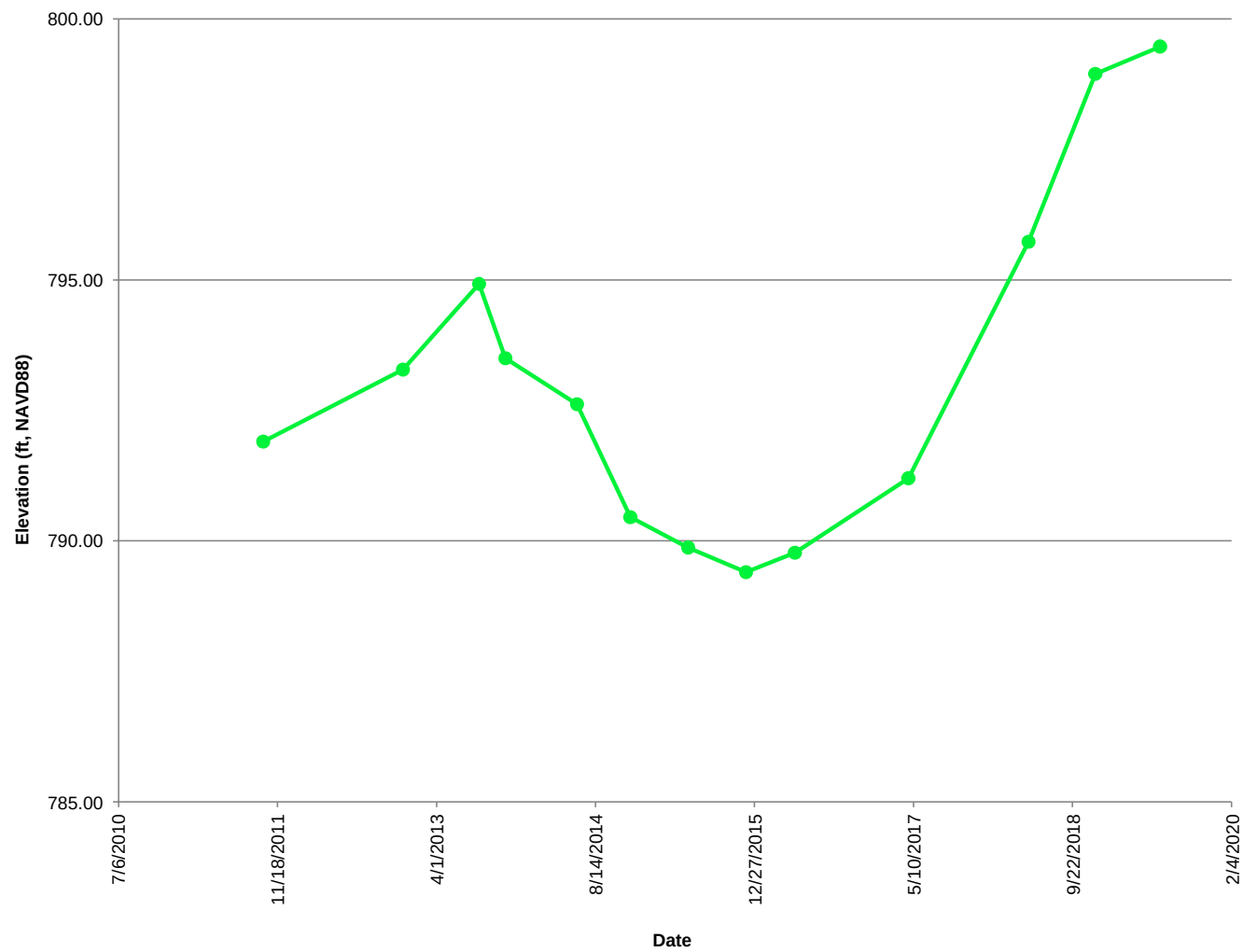
RACER Lansing  
Lansing, MI

**UNK-15 DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and built assets

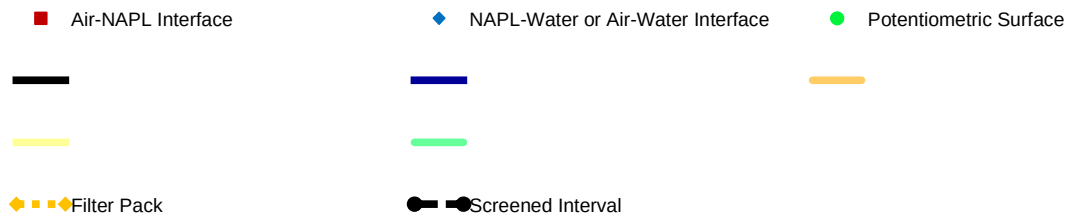
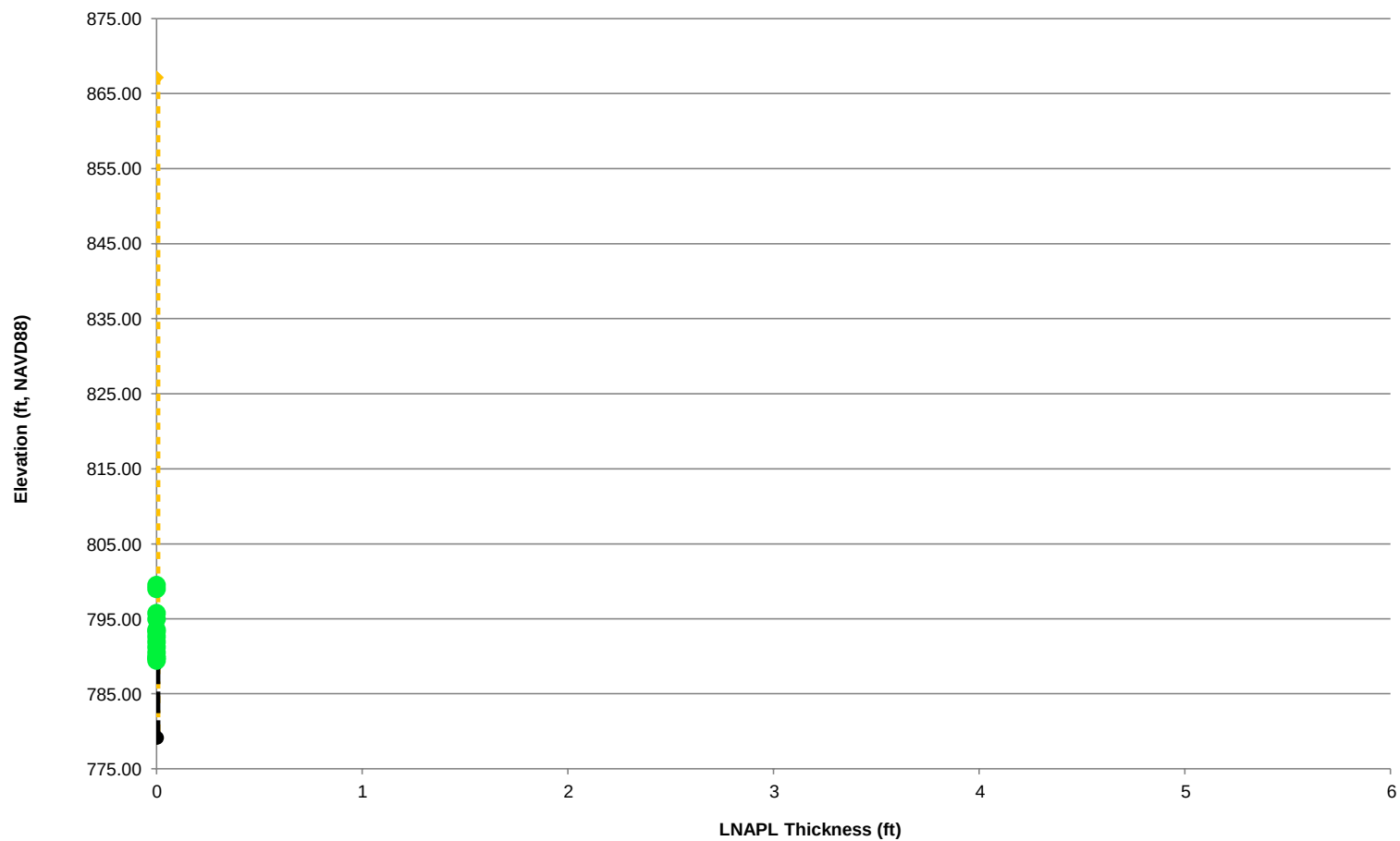
FIGURE

**C**



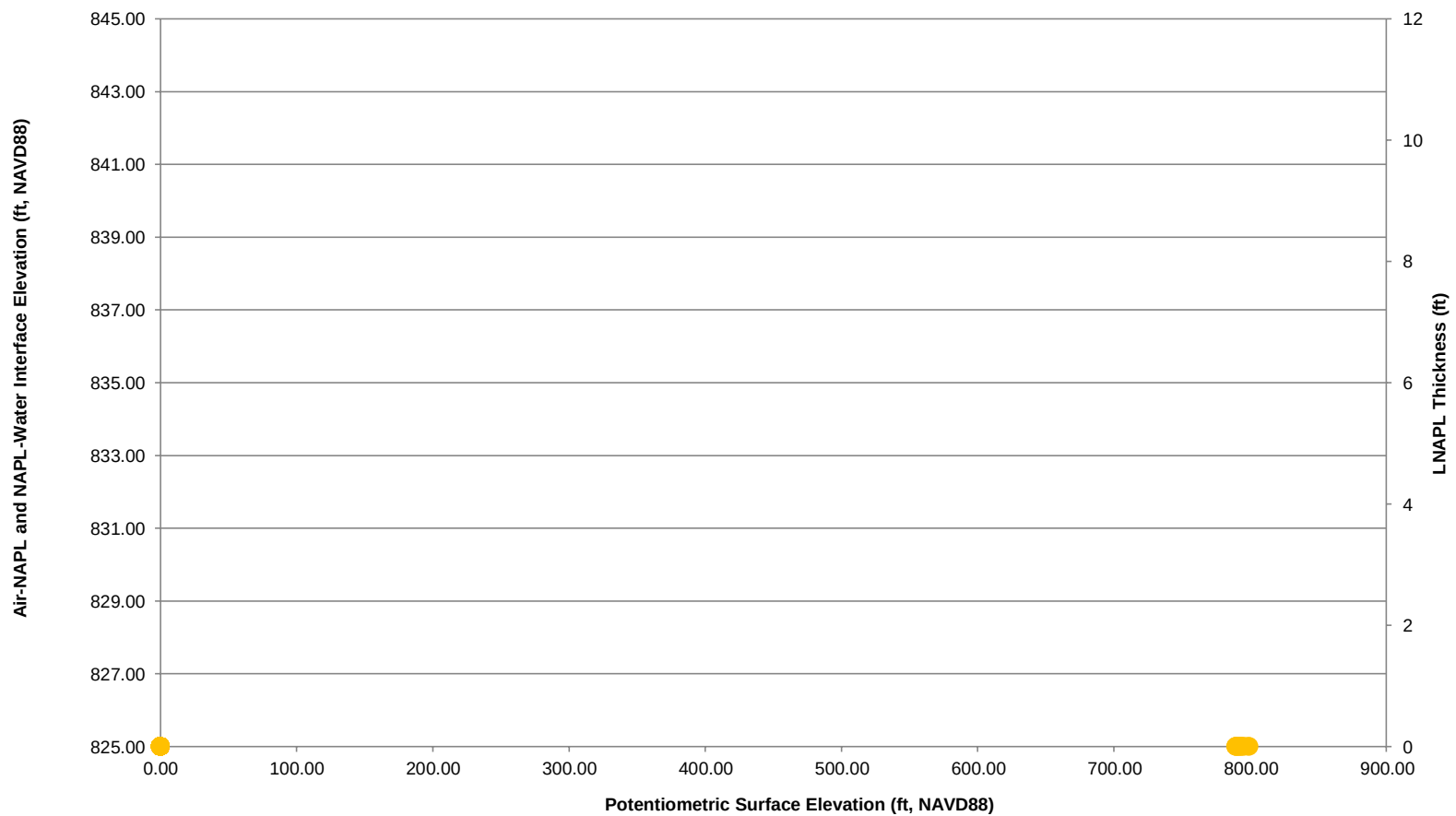
—●— Potentiometric Surface

|                                                                                                                                                                            |                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| RACER Lansing Plant 6<br>Lansing, MI                                                                                                                                       |                    |
| MW-04-01(6) HYDROGRAPH<br>BEDROCK                                                                                                                                          |                    |
|  ARCADIS <small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | FIGURE<br><b>A</b> |



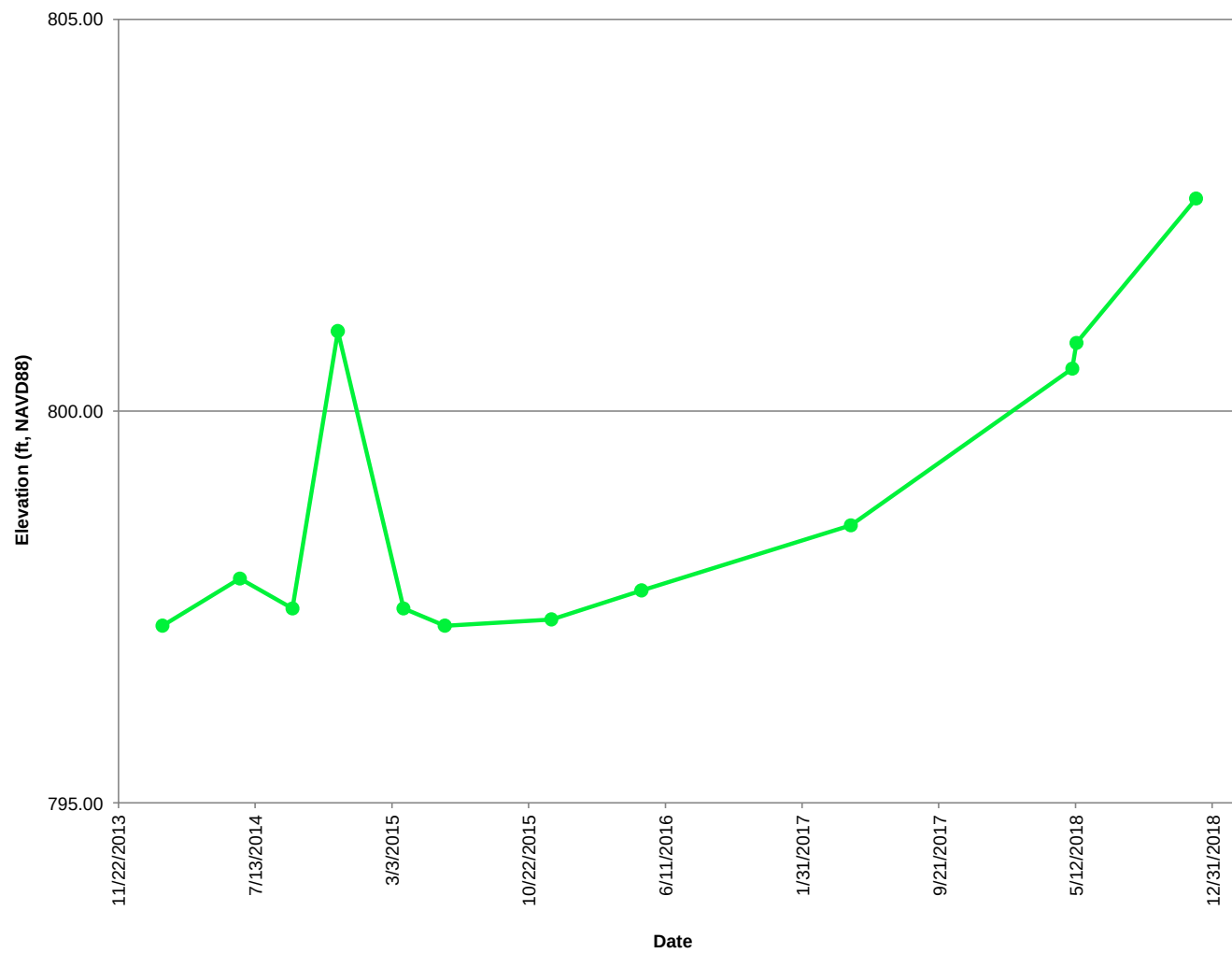
|                                                                                                                                                                               |                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                  |                           |
| MW-04-01(6) DIAGNOSTIC GAUGE PLOT                                                                                                                                             |                           |
|  ARCADIS<br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><b>B</b> |





■ Air-NAPL Interface
 ◆ NAPL-Water or Air-Water Interface
 ● NAPL Thickness

|                                                                                                                                                                               |                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                  |                           |
| <b>MW-04-01(6) DIAGNOSTIC GAUGE PLOT</b>                                                                                                                                      |                           |
|  ARCADIS<br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><b>C</b> |



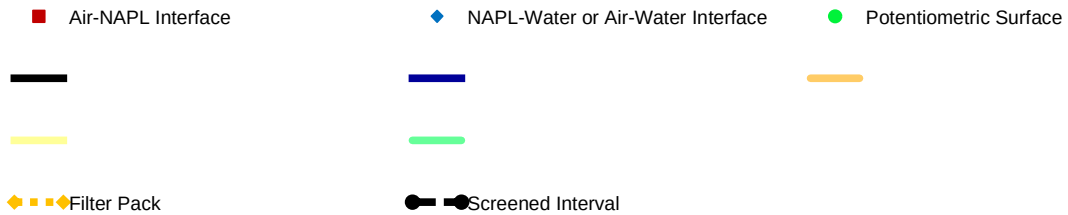
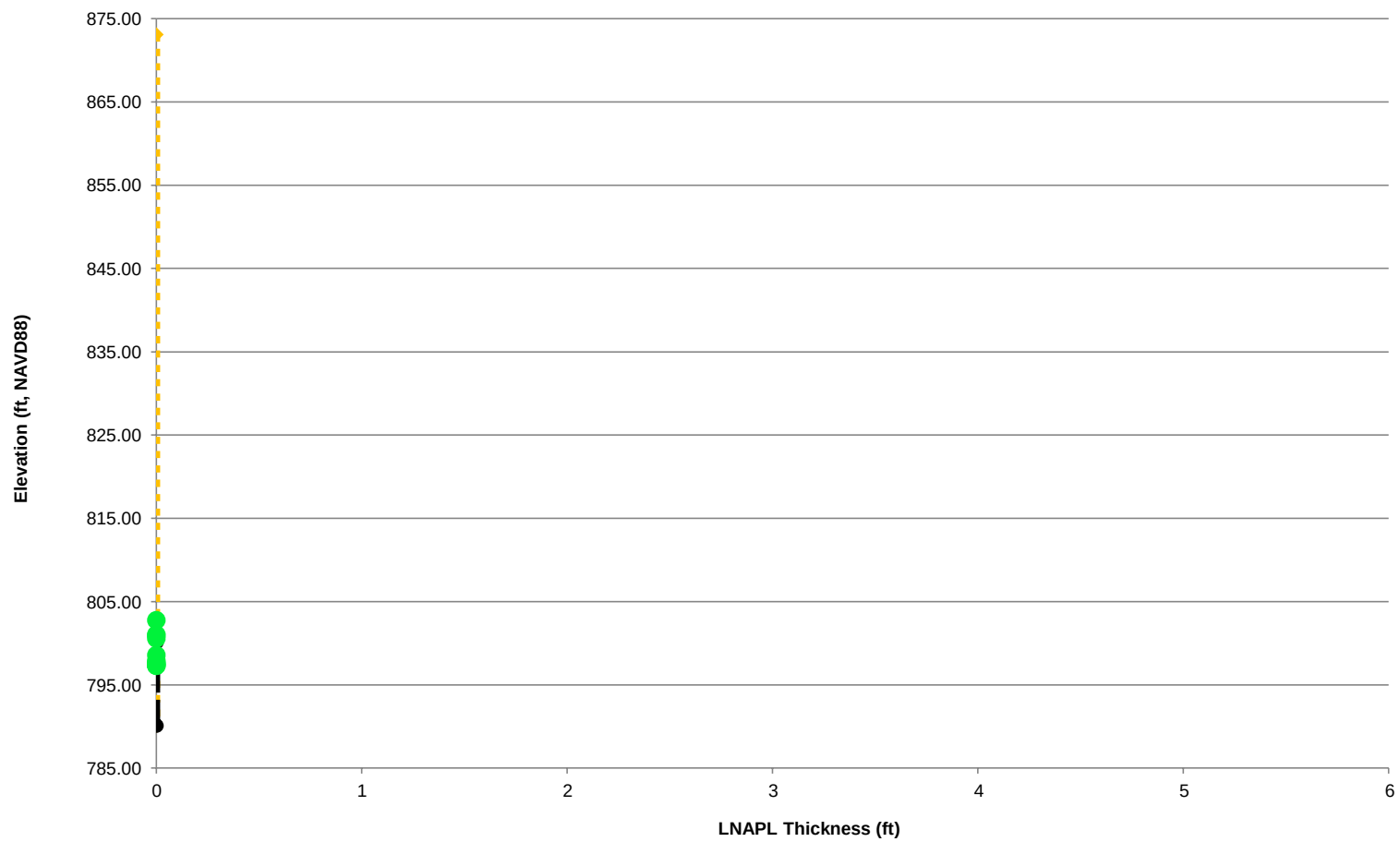
—●— Potentiometric Surface

RACER Lansing Plant 6  
Lansing, MI

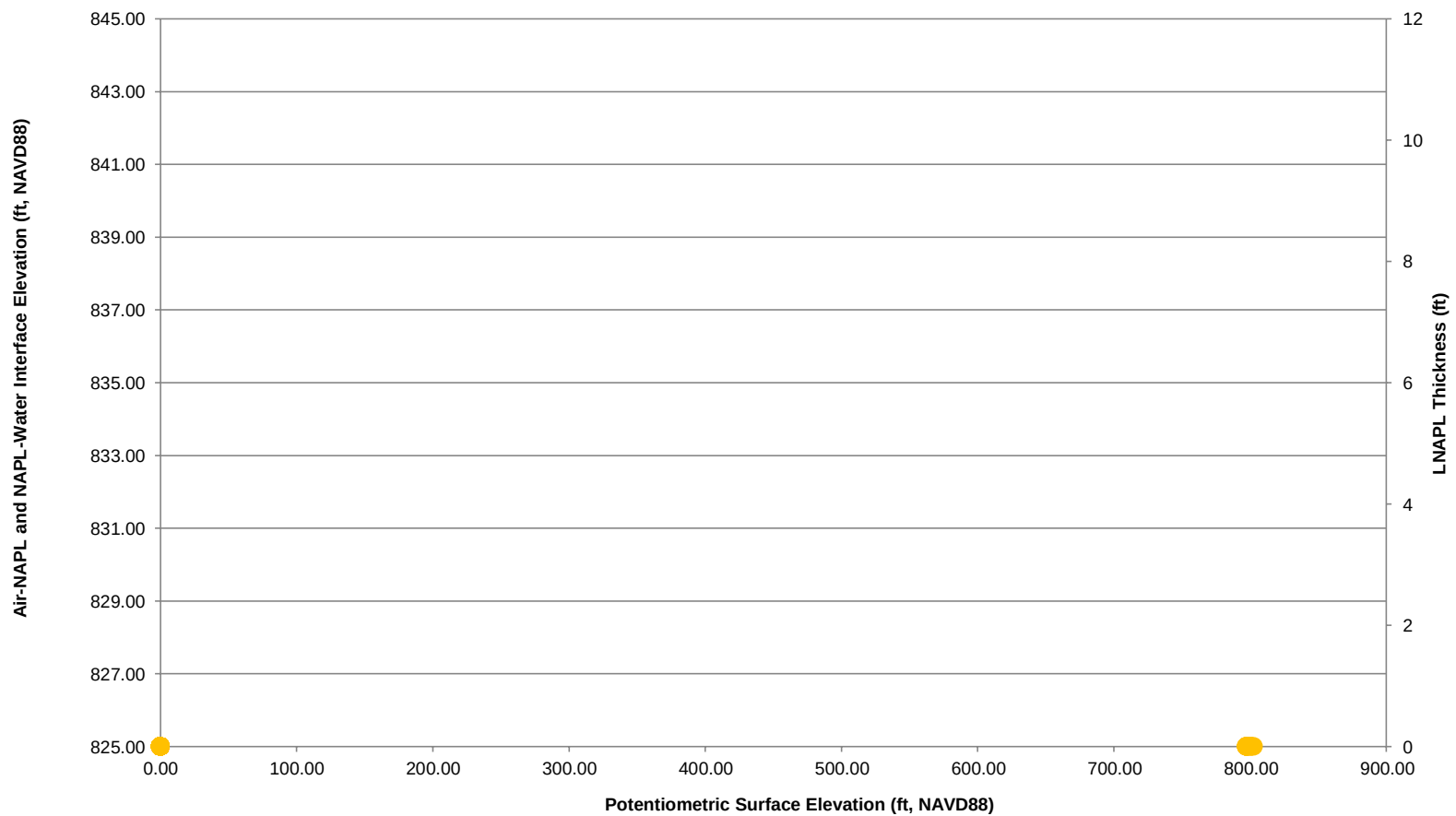
**MW-13-53 HYDROGRAPH**  
DEEP OVERBURDEN/WEATHERED BEDROCK

 **ARCADIS** | Design & Consultancy  
for natural and built assets

FIGURE  
**A**

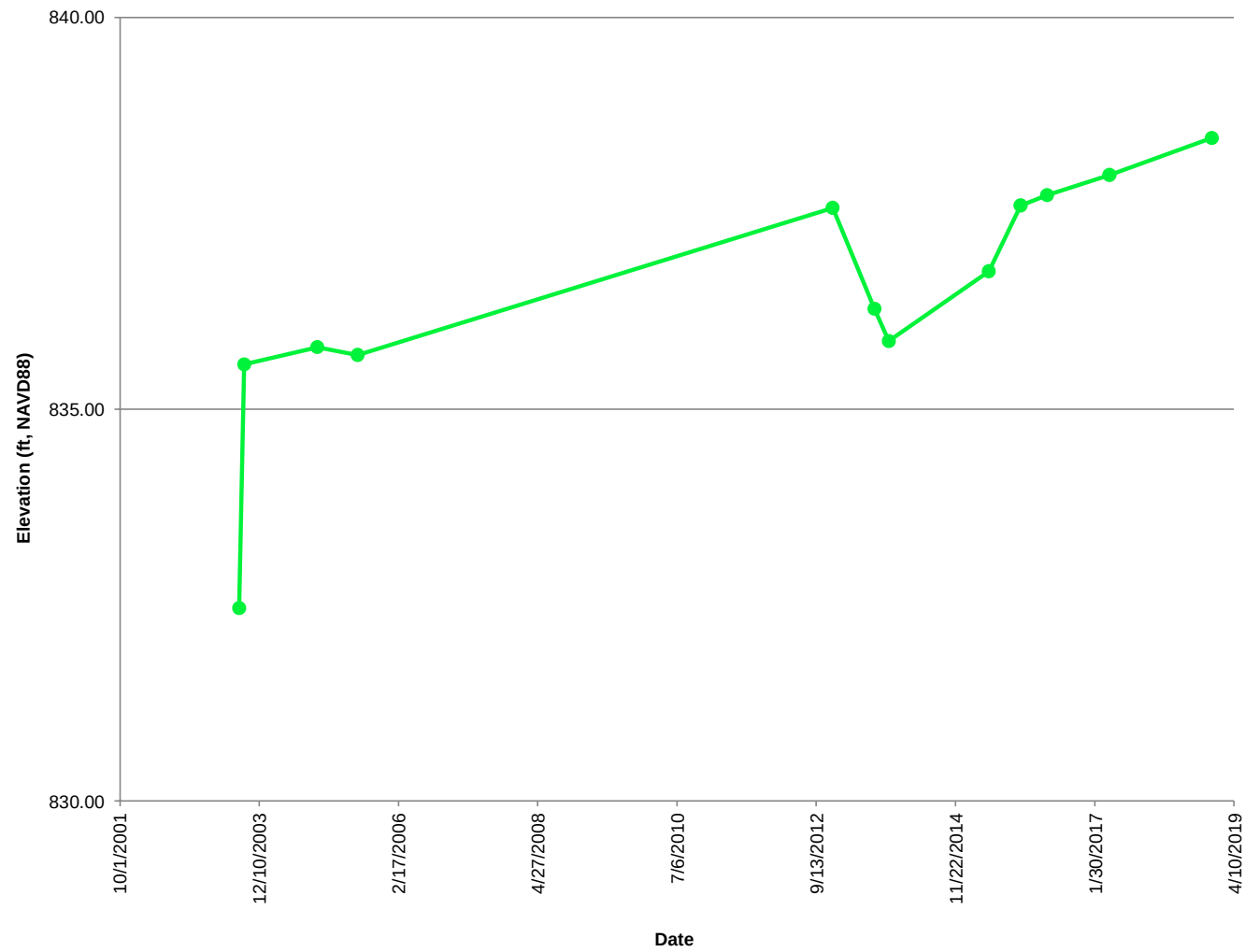


|                                                                    |                    |
|--------------------------------------------------------------------|--------------------|
| RACER Lansing<br>Lansing, MI                                       |                    |
| MW-13-53 DIAGNOSTIC GAUGE PLOT                                     |                    |
| ARCADIS<br>Design & Consultancy<br>for natural and<br>built assets | FIGURE<br><b>B</b> |



■ Air-NAPL Interface
 ◆ NAPL-Water or Air-Water Interface
 ● NAPL Thickness

|                                                                                                                                                                               |                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                  |                           |
| <b>MW-13-53 DIAGNOSTIC GAUGE PLOT</b>                                                                                                                                         |                           |
|  ARCADIS<br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE</b><br><b>C</b> |



—●— Potentiometric Surface

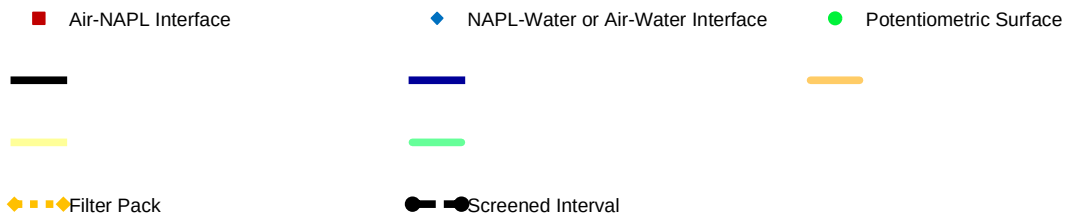
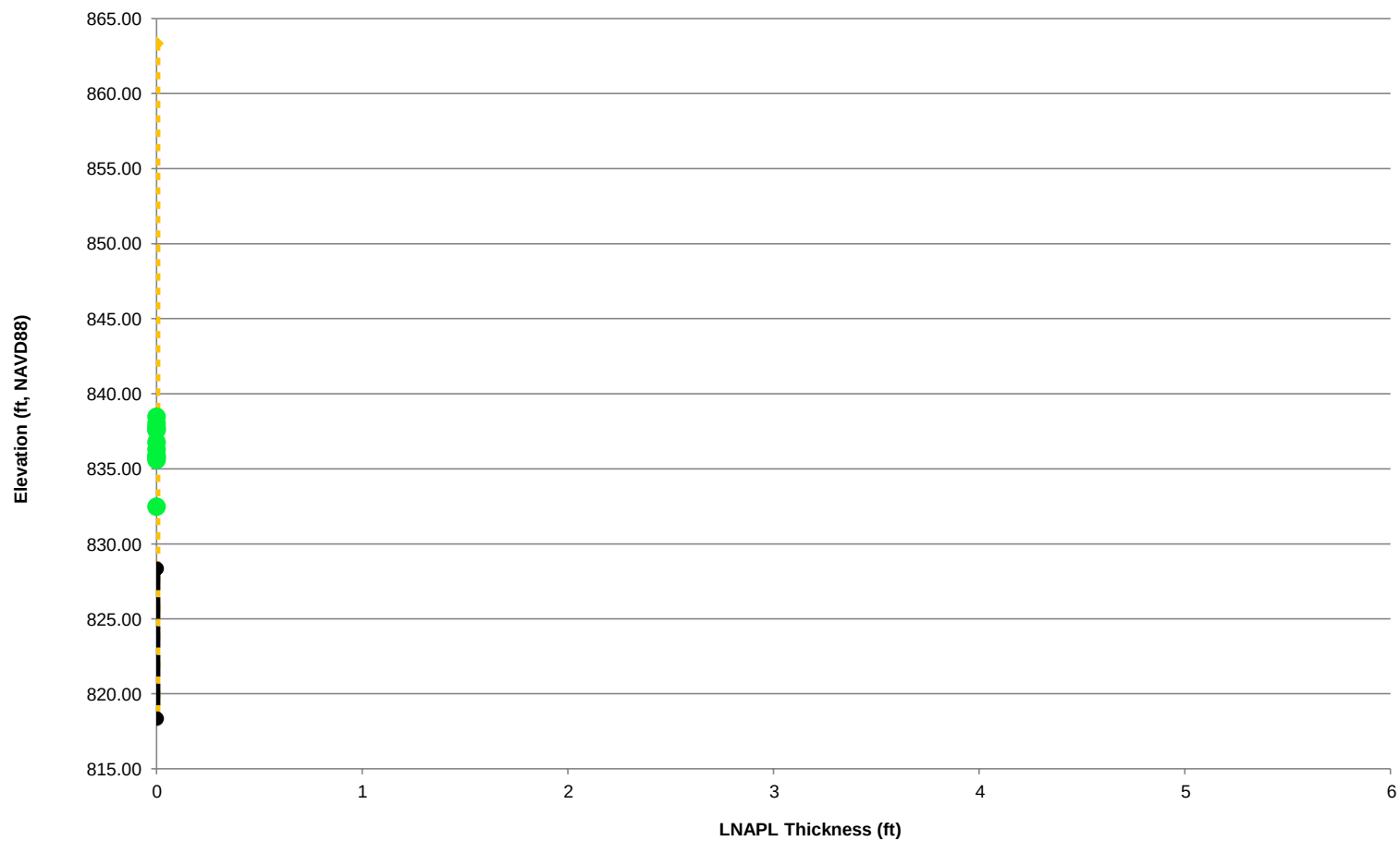
RACER Lansing Plant 6  
Lansing, MI

**MW-02-01(6) HYDROGRAPH**  
PERCHED

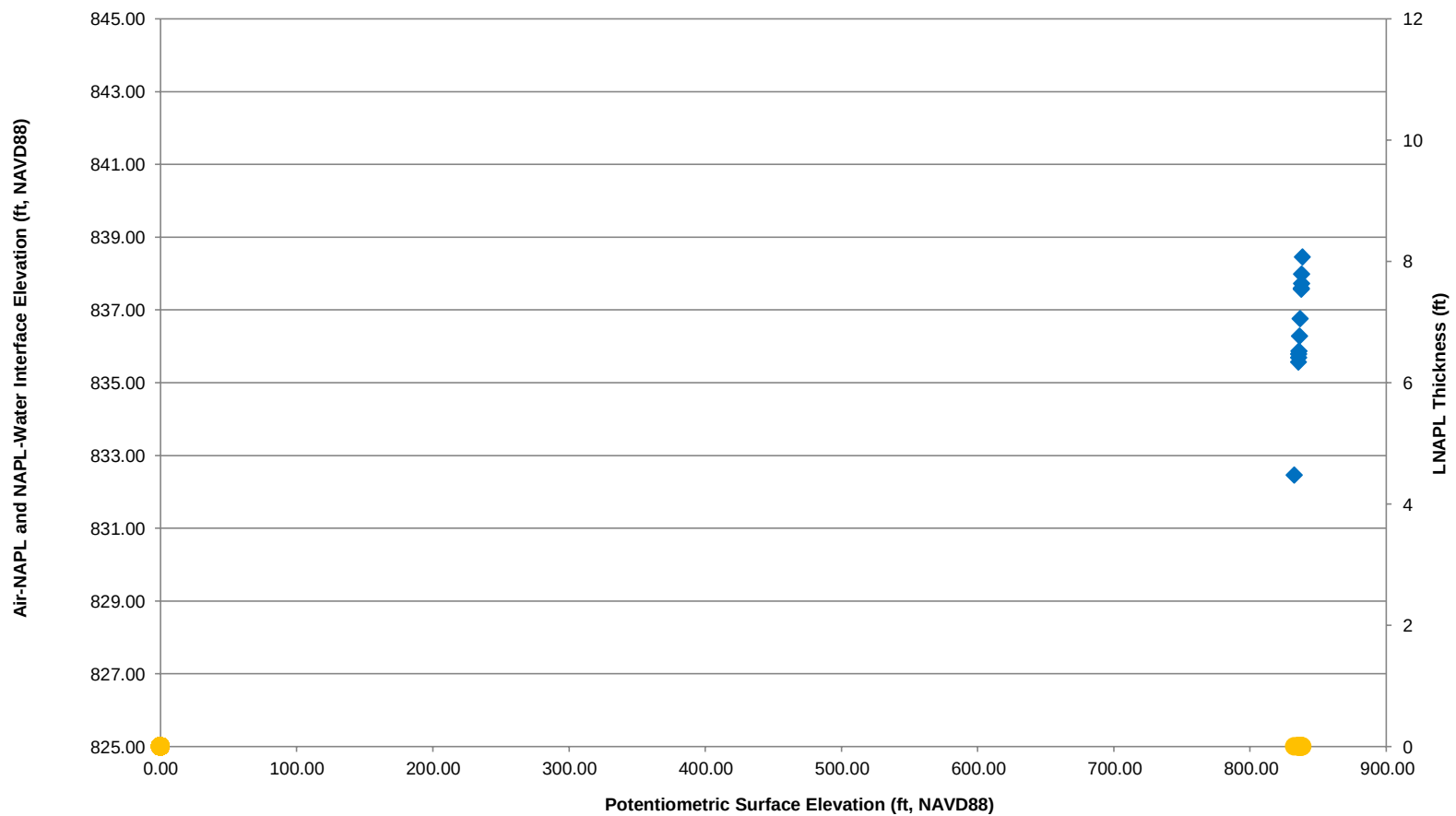
 **ARCADIS** | Design & Consultancy  
for natural and built assets

FIGURE

**A**



|                                                                                                                                                                                      |                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                         |                     |
| MW-02-01(6) DIAGNOSTIC GAUGE PLOT                                                                                                                                                    |                     |
|  <b>ARCADIS</b><br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE<br/>B</b> |



■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

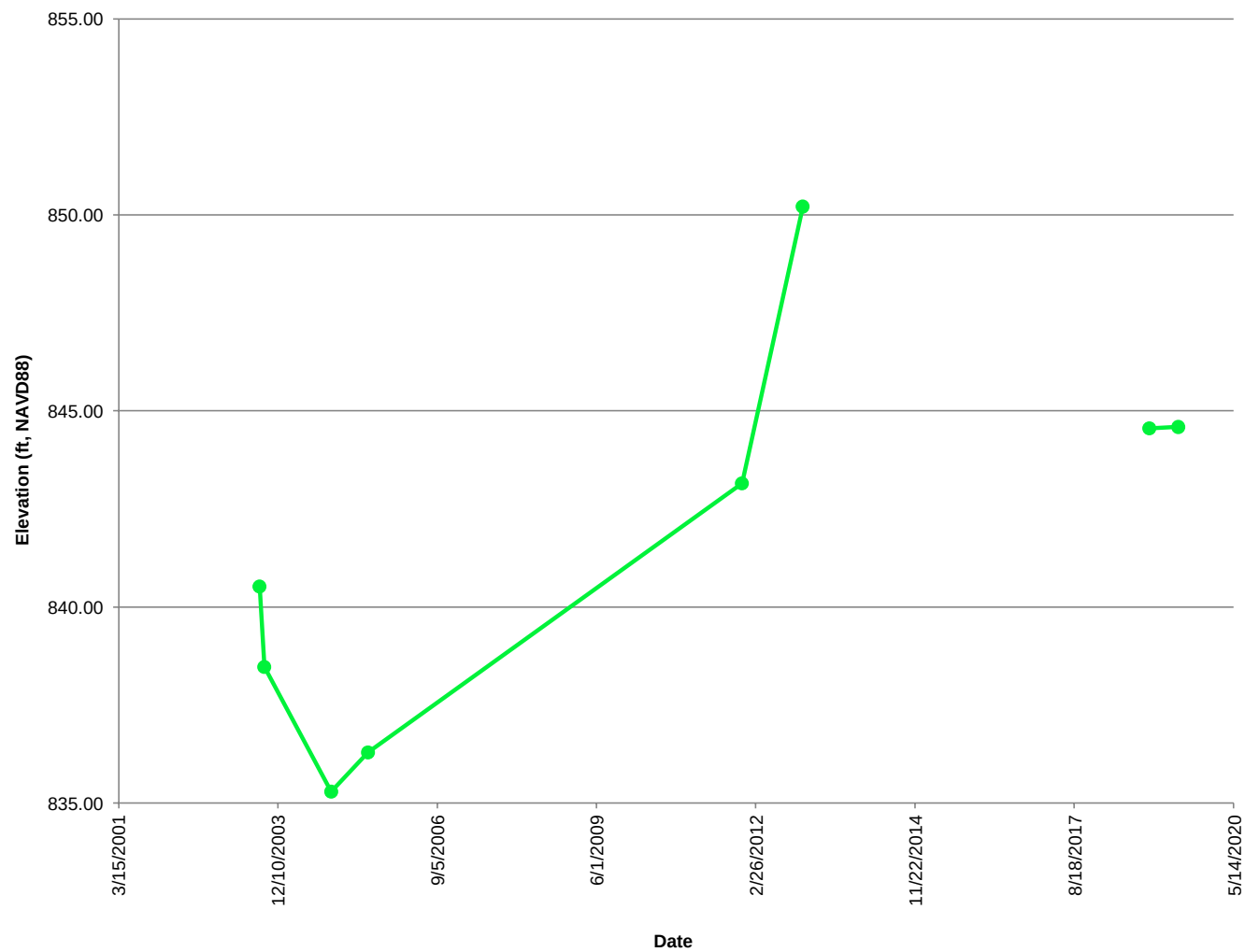
RACER Lansing  
Lansing, MI

**MW-02-01(6) DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and built assets

FIGURE

**C**



—●— Potentiometric Surface

RACER Lansing Plant 6  
Lansing, MI

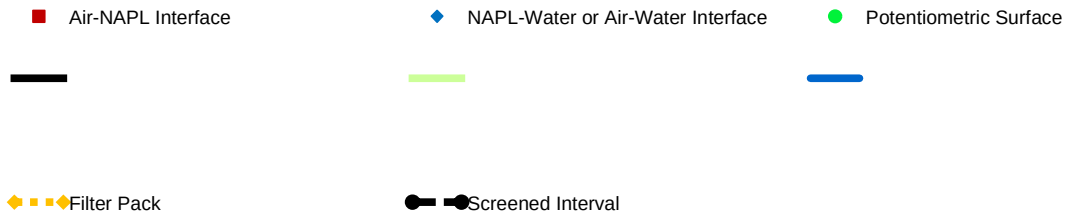
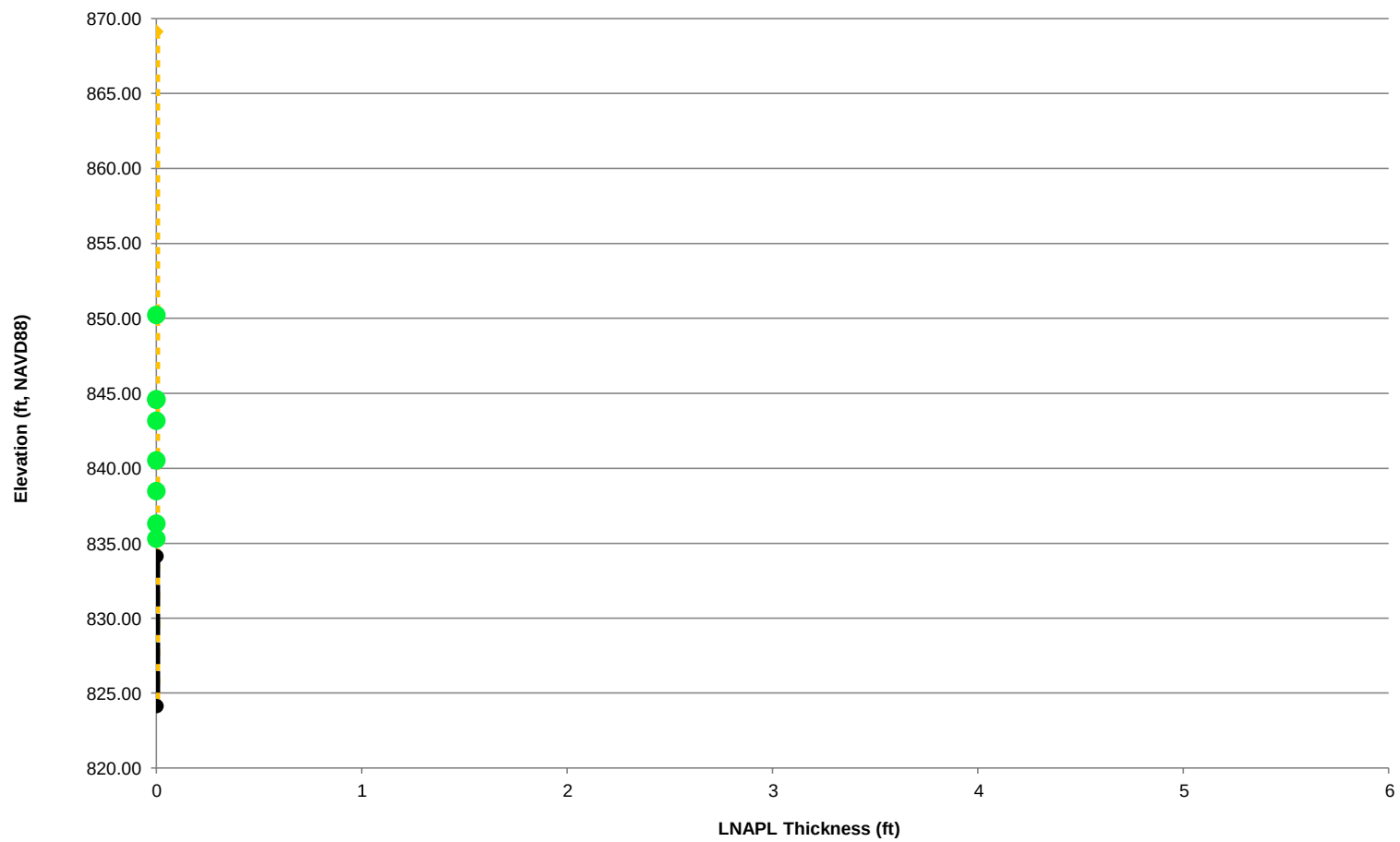
**MW-03-05 HYDROGRAPH**  
**PERCHED**

**ARCADIS** | Design & Consultancy  
for natural and built assets

FIGURE

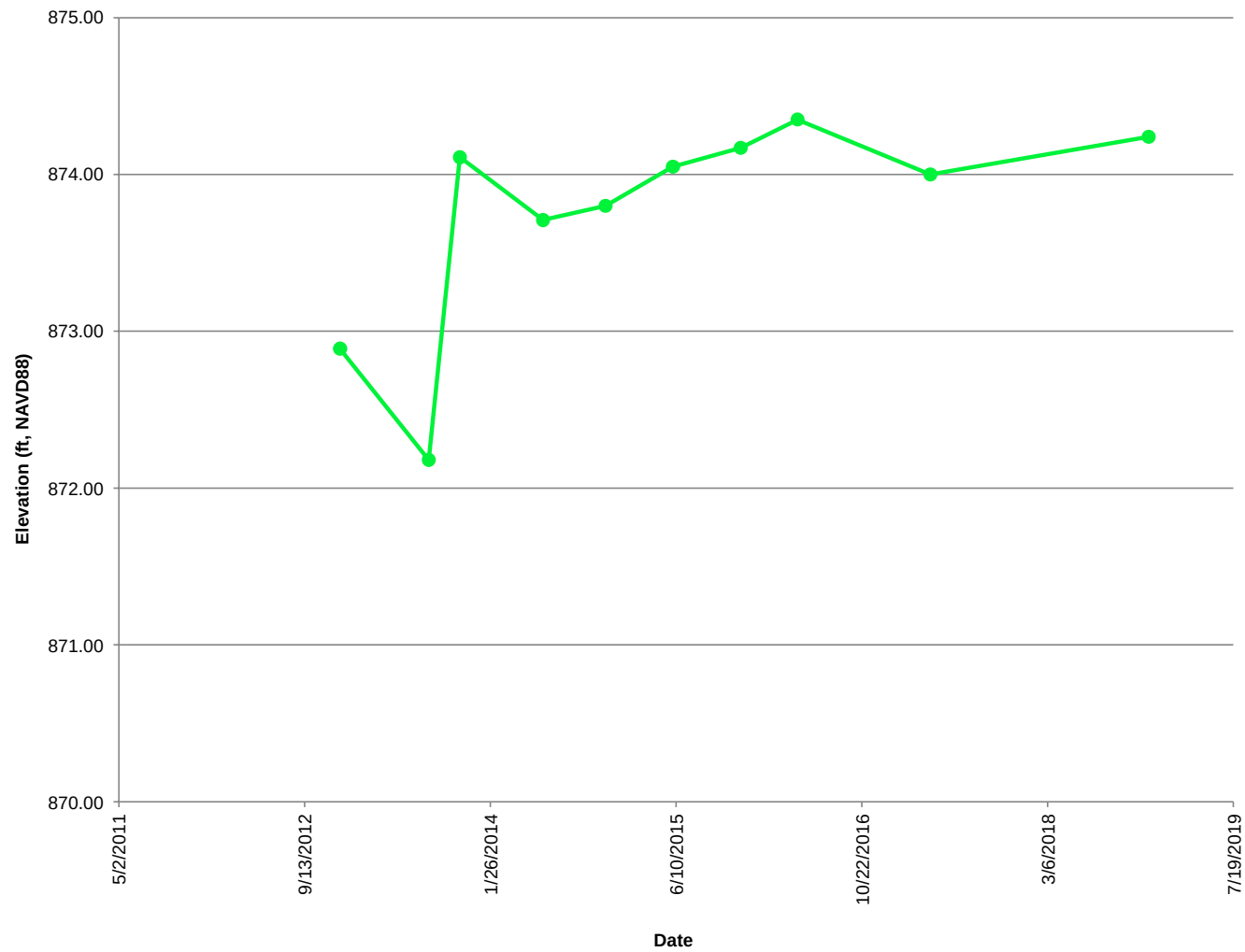
**A**





|                                                                                                                                                                                      |                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                         |                     |
| MW-03-05 DIAGNOSTIC GAUGE PLOT                                                                                                                                                       |                     |
|  <b>ARCADIS</b><br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE<br/>B</b> |





—●— Potentiometric Surface

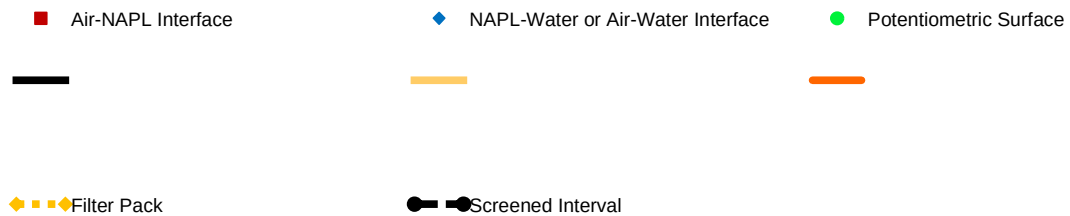
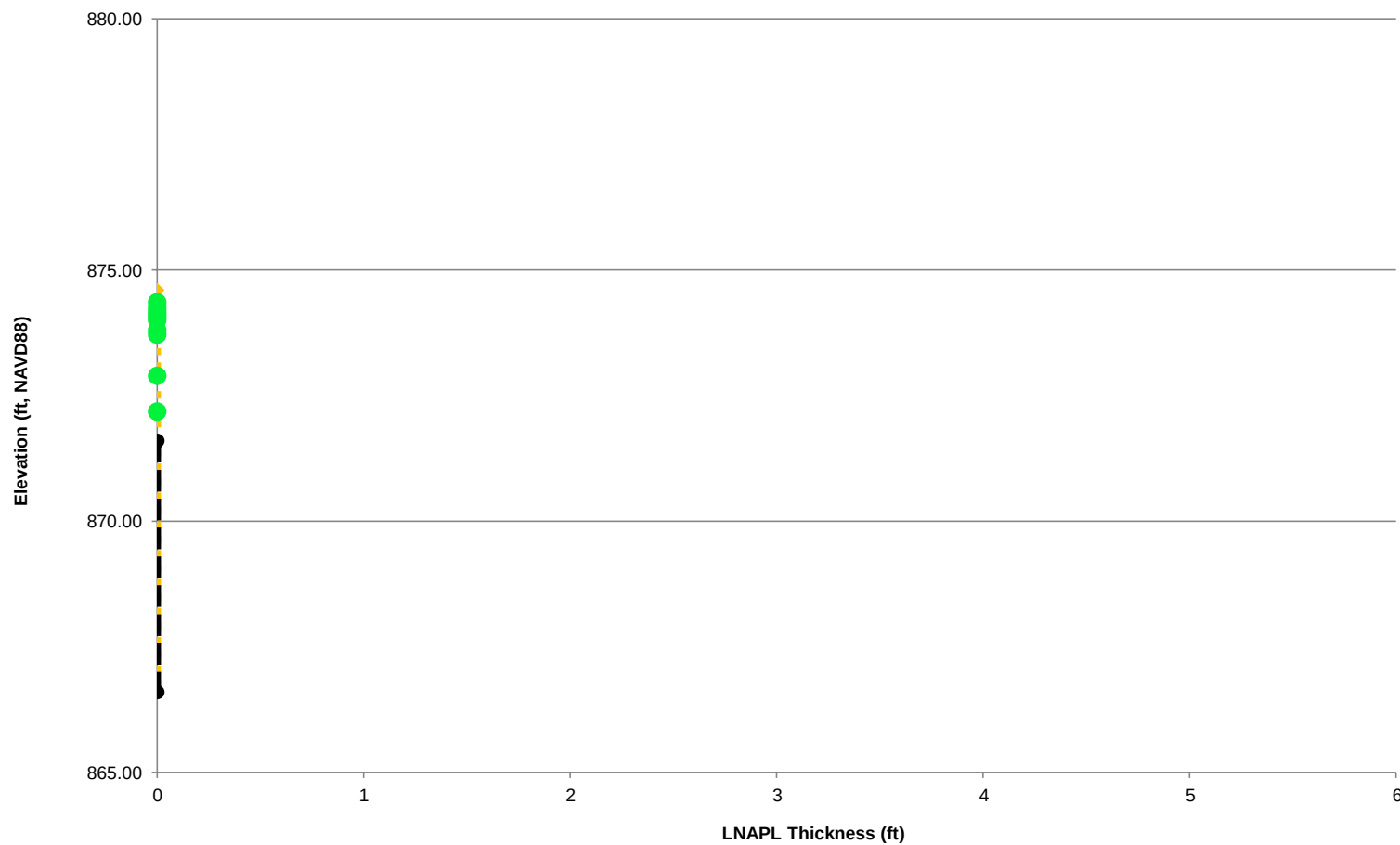
RACER Lansing Plant 6  
Lansing, MI

**P6-SB-18 HYDROGRAPH**  
**PERCHED**

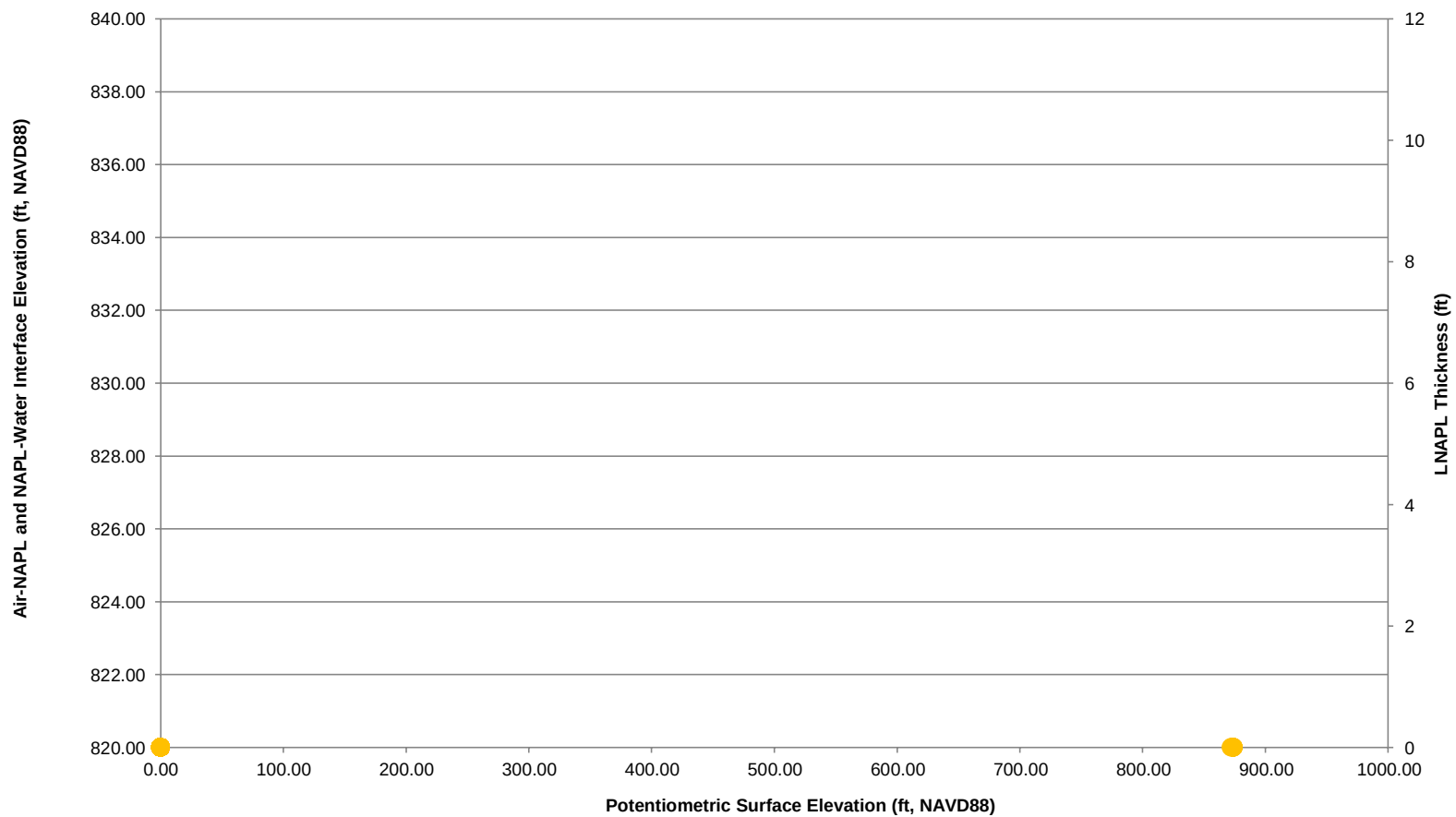
 **ARCADIS** | Design & Consultancy  
for natural and built assets

FIGURE

**A**



|                                                                    |                    |
|--------------------------------------------------------------------|--------------------|
| RACER Lansing<br>Lansing, MI                                       |                    |
| P6-SB-18 DIAGNOSTIC GAUGE PLOT                                     |                    |
| ARCADIS<br>Design & Consultancy<br>for natural and<br>built assets | FIGURE<br><b>B</b> |



■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

RACER Lansing  
Lansing, MI

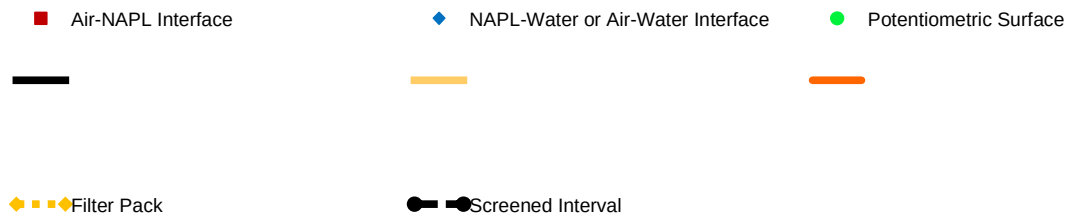
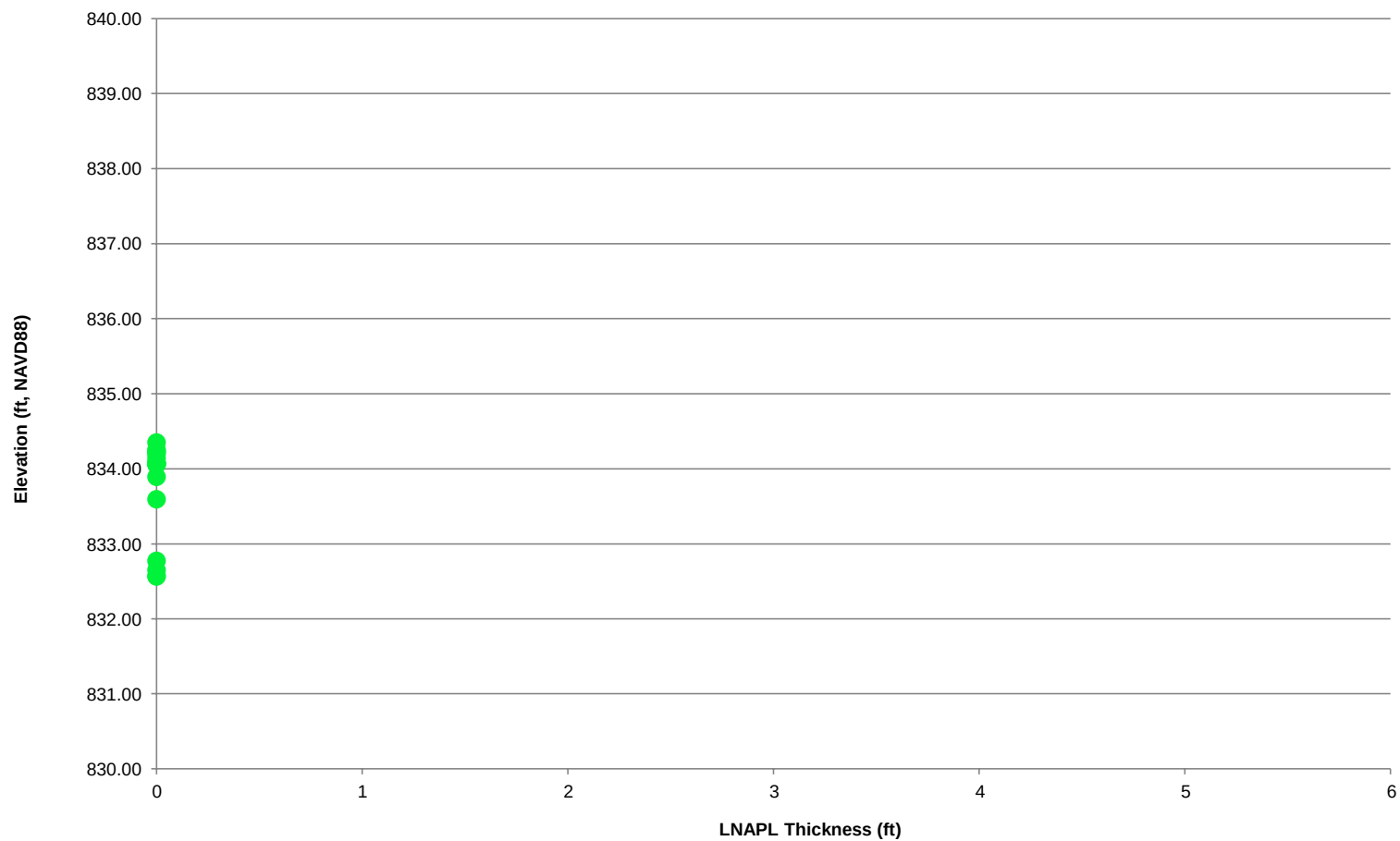
**P6-SB-18 DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and built assets

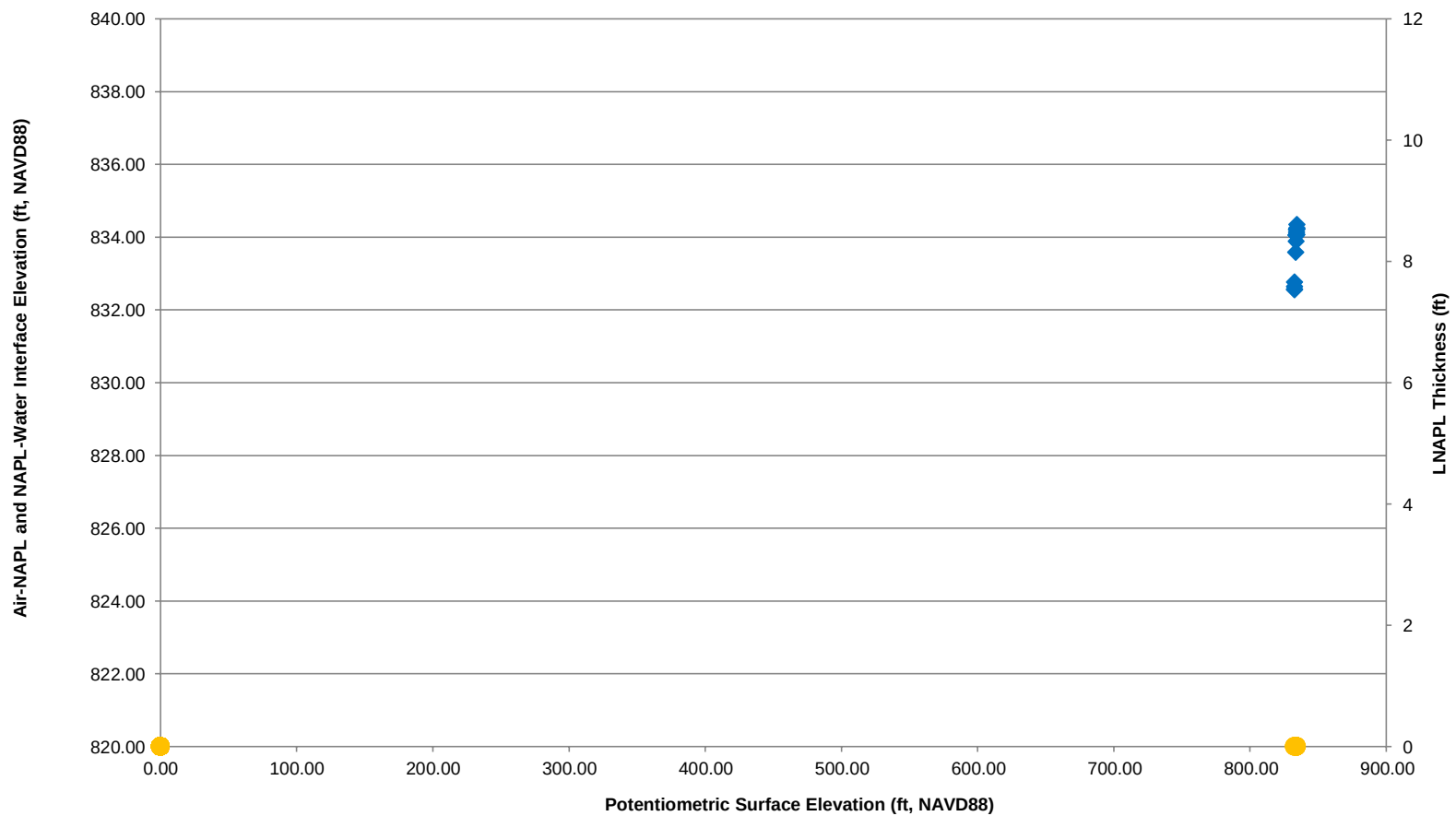
FIGURE

**C**





|                                                                                                                                                                                      |                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| RACER Lansing<br>Lansing, MI                                                                                                                                                         |                     |
| MW-03-06 DIAGNOSTIC GAUGE PLOT                                                                                                                                                       |                     |
|  <b>ARCADIS</b><br><small>Design &amp; Consultancy<br/>for natural and<br/>built assets</small> | <b>FIGURE<br/>B</b> |



■ Air-NAPL Interface

◆ NAPL-Water or Air-Water Interface

● NAPL Thickness

RACER Lansing  
Lansing, MI

**MW-03-06 DIAGNOSTIC GAUGE PLOT**

**ARCADIS** Design & Consultancy  
for natural and  
built assets

FIGURE

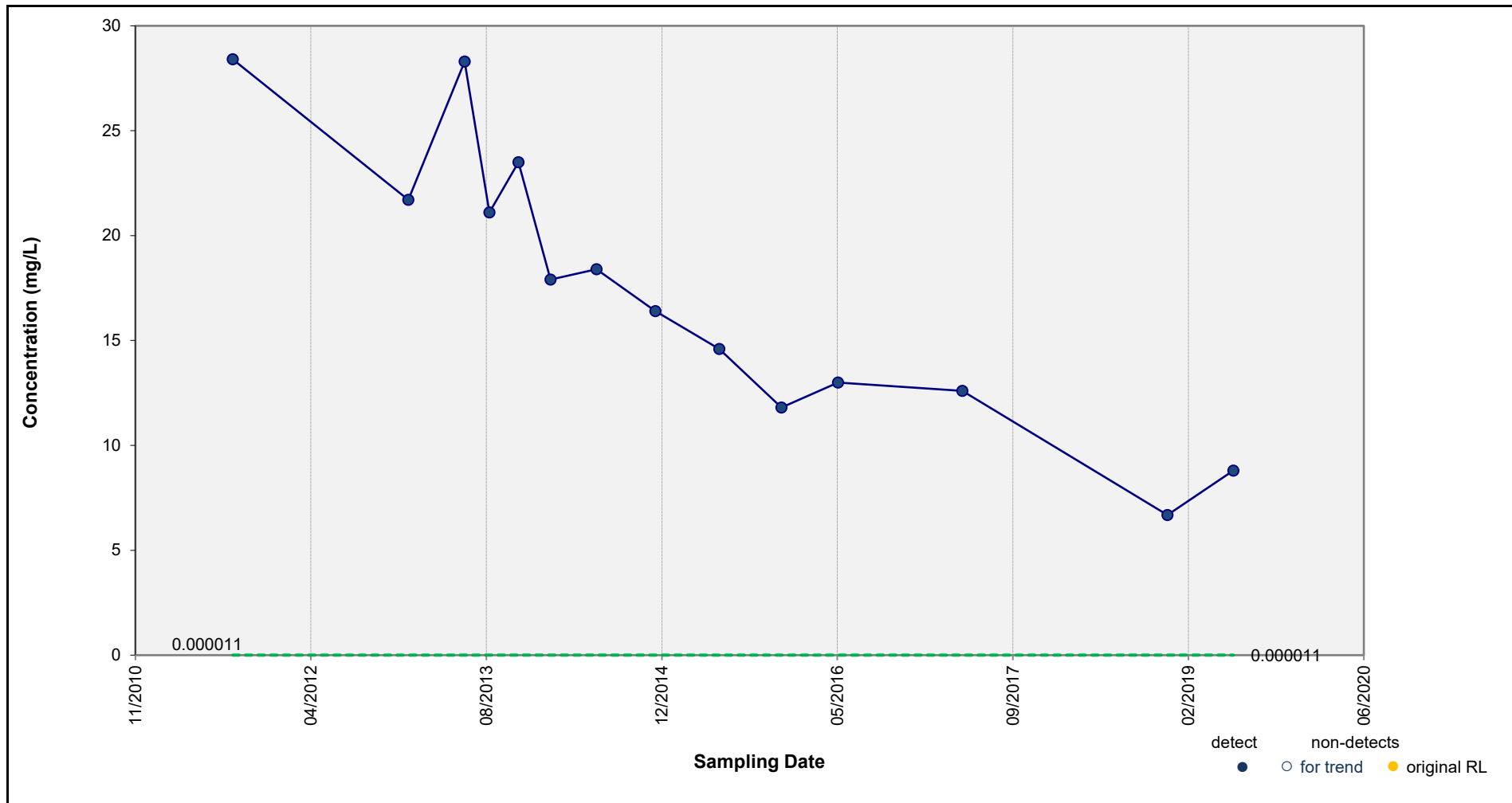
**C**



# APPENDIX F

Concentration vs. Time Plots  
(On attached CD)





**Results of Mann-Kendall Test for Trend:**

**DECREASING TREND**

p value =  Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

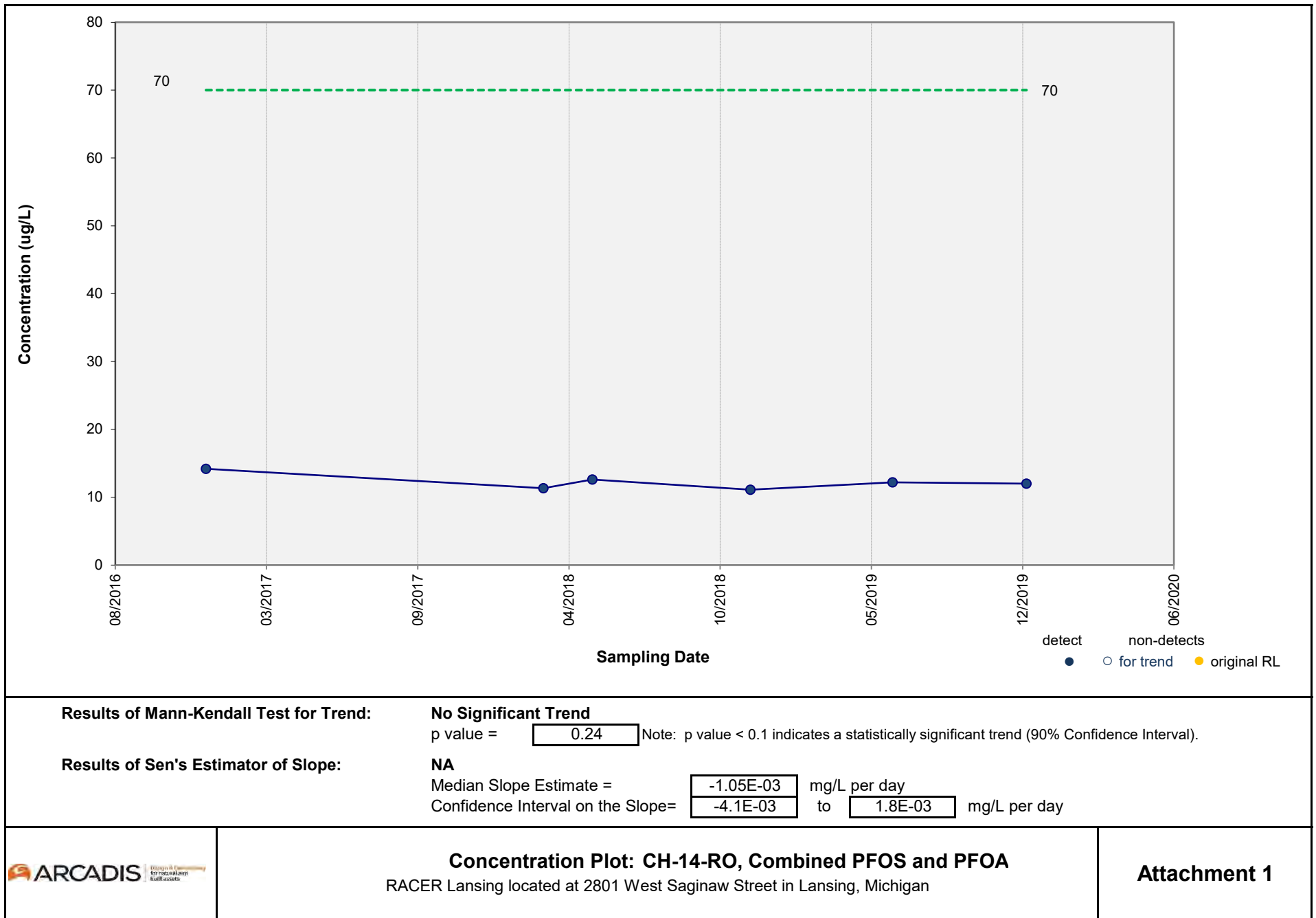
**NA**

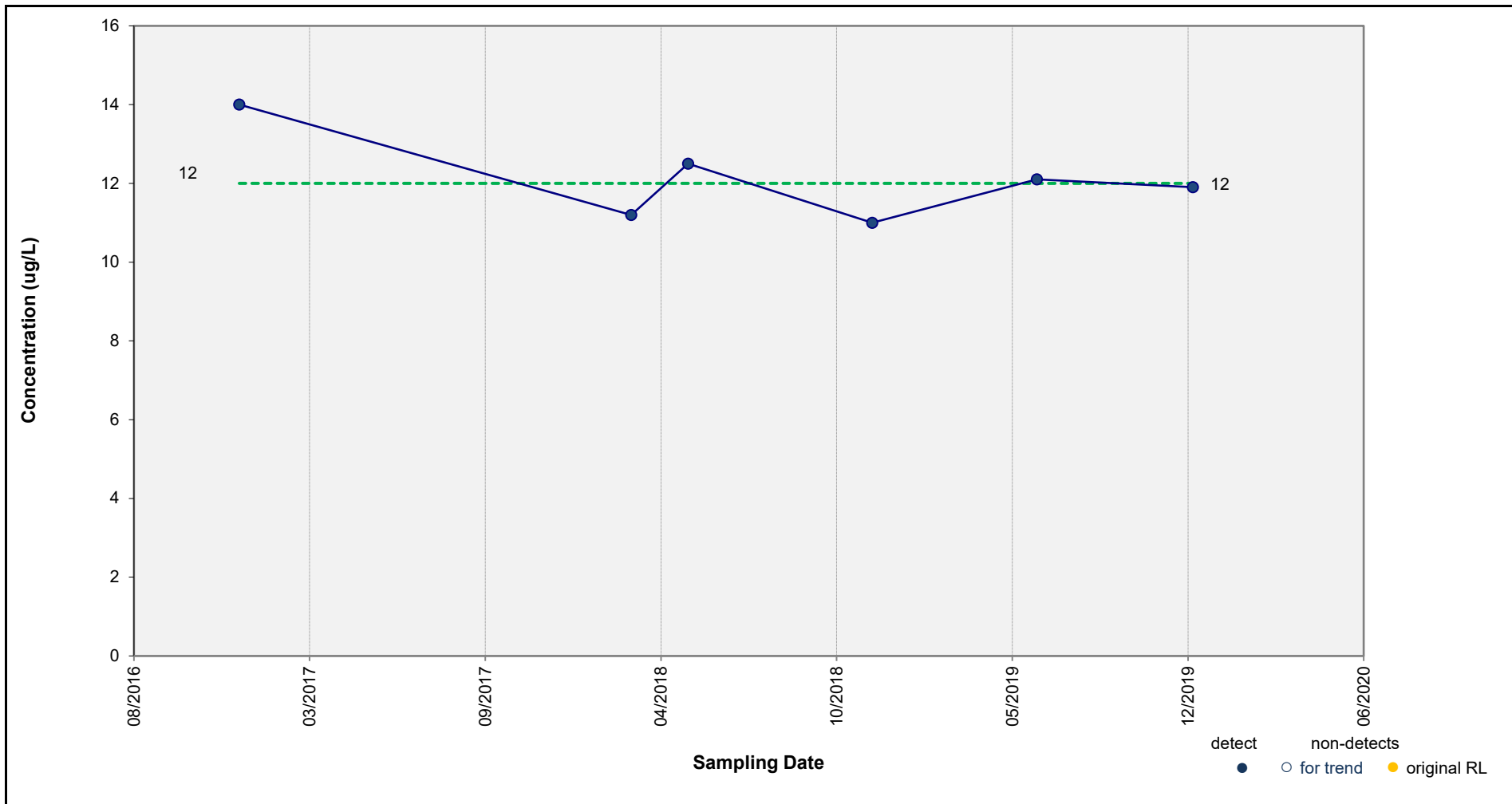
Median Slope Estimate =  mg/L per day  
Confidence Interval on the Slope=  to  mg/L per day



**Concentration Plot: CH-14-RO, Chromium VI**  
RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**





**Results of Mann-Kendall Test for Trend:**

**No Significant Trend**

p value = 0.24 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

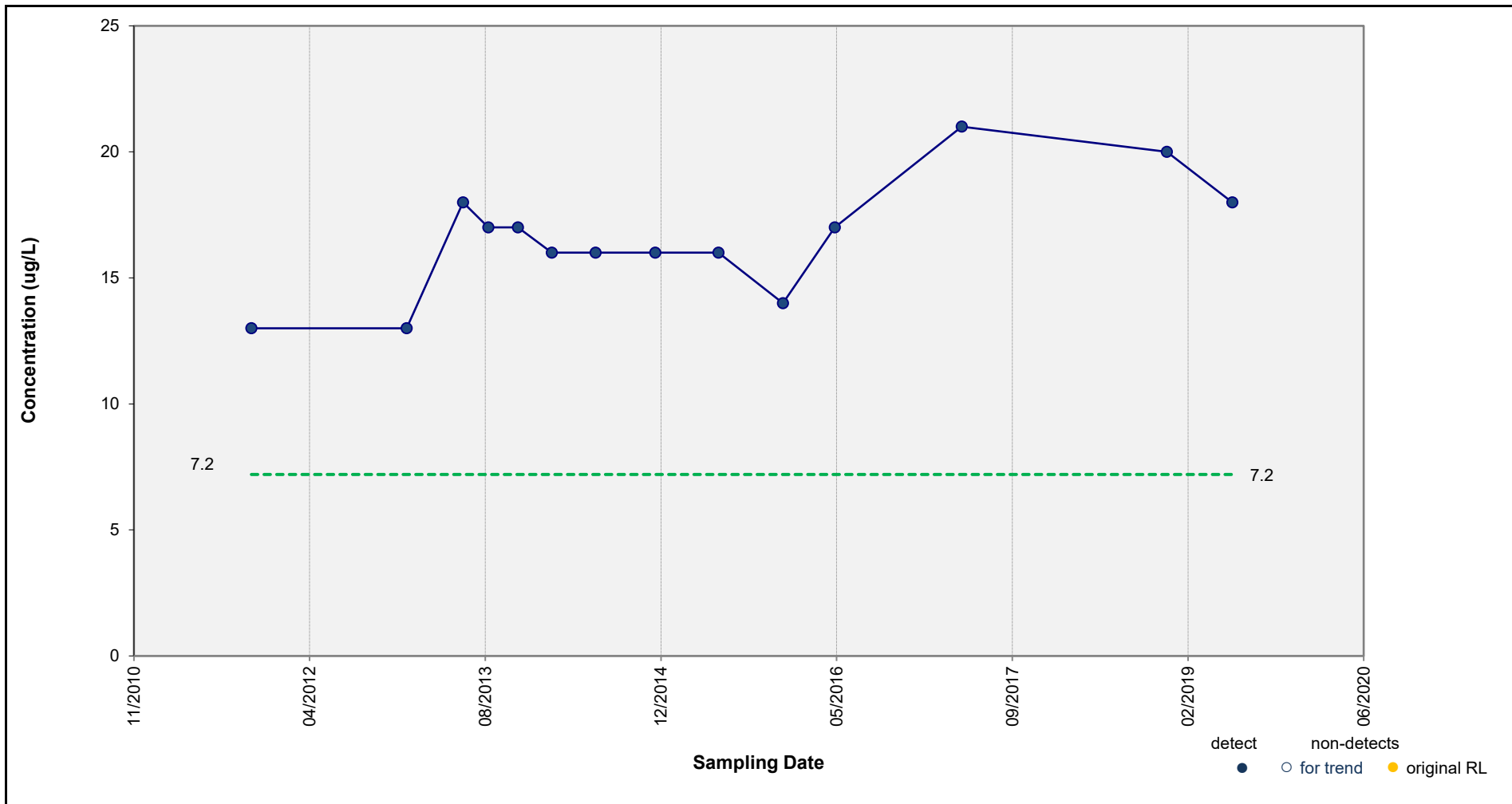
**NA**

Median Slope Estimate = -1.04E-03 mg/L per day  
 Confidence Interval on the Slope= -4.0E-03 to 1.8E-03 mg/L per day



**Concentration Plot: CH-14-RO, PFOS**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**INCREASING TREND**

p value = 0.05 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

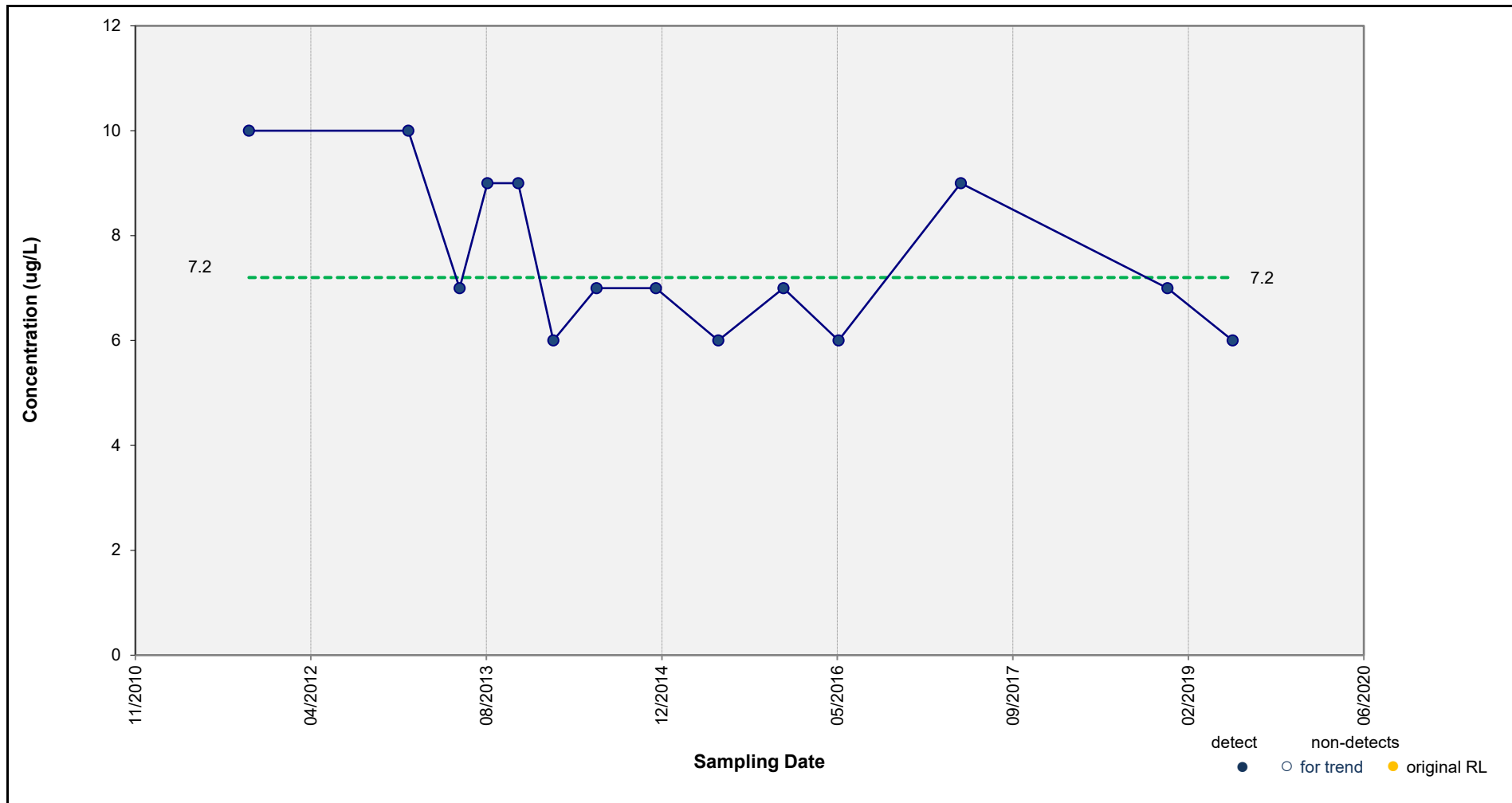
NA

Median Slope Estimate = 1.24E-03 mg/L per day  
Confidence Interval on the Slope= 0.0E+00 to 2.7E-03 mg/L per day



**Concentration Plot: MW-02-03(6), 1,4-Dioxane**  
RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**DECREASING TREND**

p value = 0.01 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

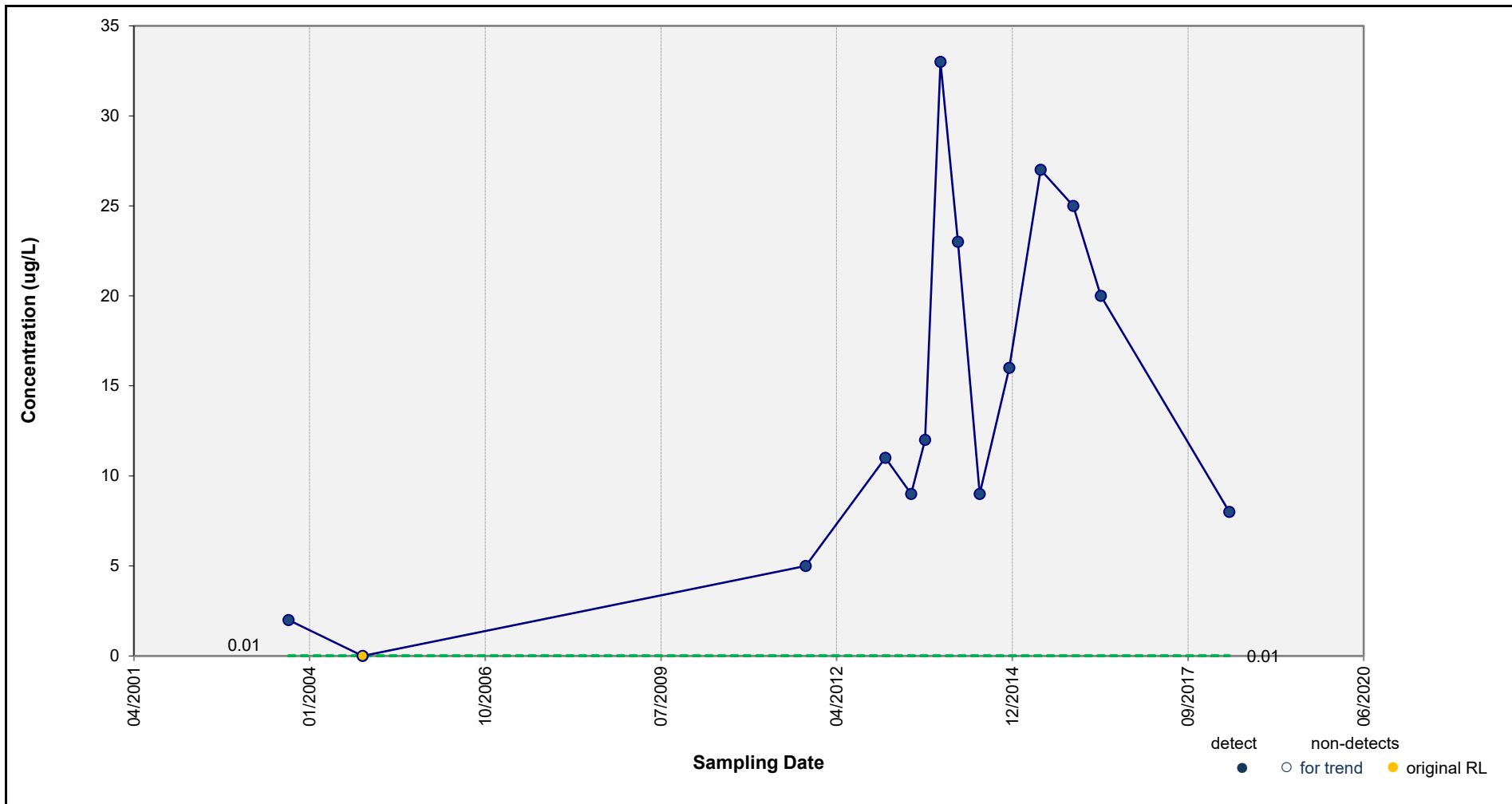
**NA**

Median Slope Estimate = -1.15E-03 mg/L per day  
Confidence Interval on the Slope = -2.6E-03 to 0.0E+00 mg/L per day



**Concentration Plot: MW-03-06, 1,4-Dioxane**  
RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**INCREASING TREND**

p value = 0.06 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

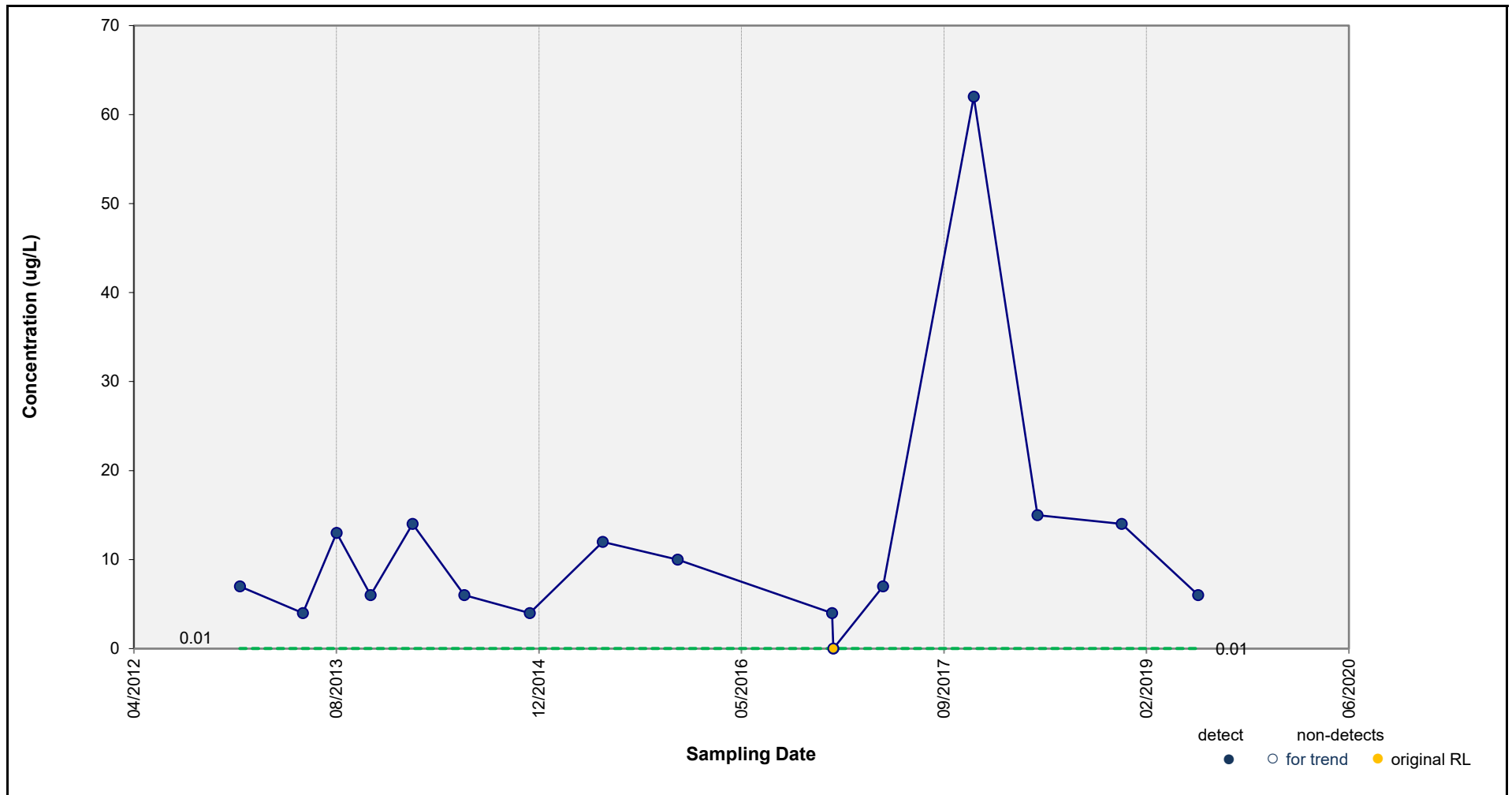
**NA**

Median Slope Estimate = 5.33E-03 mg/L per day  
 Confidence Interval on the Slope = -2.5E-04 to 1.0E-02 mg/L per day



**Concentration Plot: MW-03-06, Arsenic**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



#### Results of Mann-Kendall Test for Trend:

#### No Significant Trend

p value = 0.18 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

#### Results of Sen's Estimator of Slope:

NA

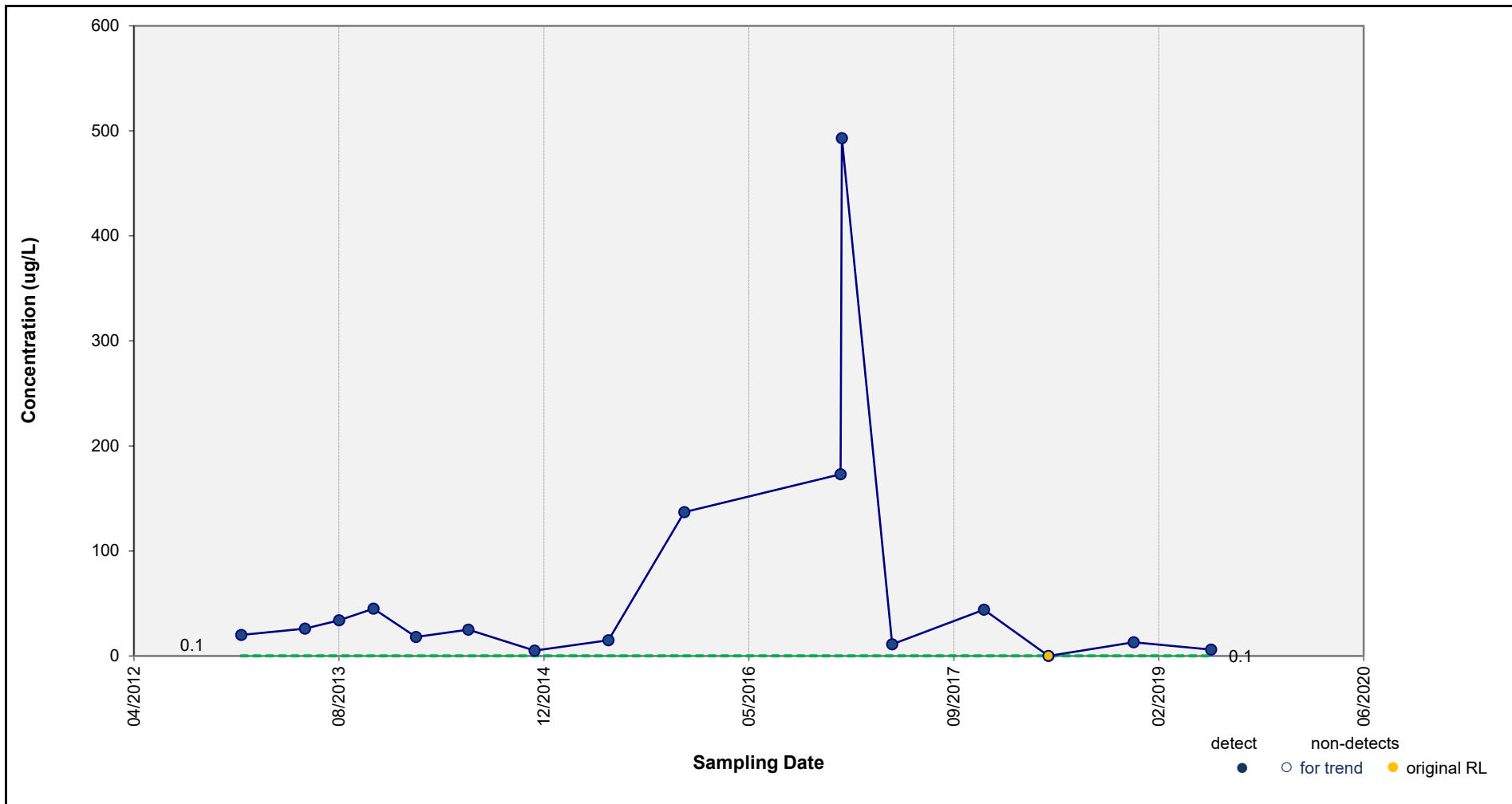
Median Slope Estimate = 1.16E-03 mg/L per day  
 Confidence Interval on the Slope = -1.7E-03 to 5.3E-03 mg/L per day



**Concentration Plot: MW-12-11, Arsenic**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**





#### Results of Mann-Kendall Test for Trend:

#### No Significant Trend

p value = 0.35 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

#### Results of Sen's Estimator of Slope:

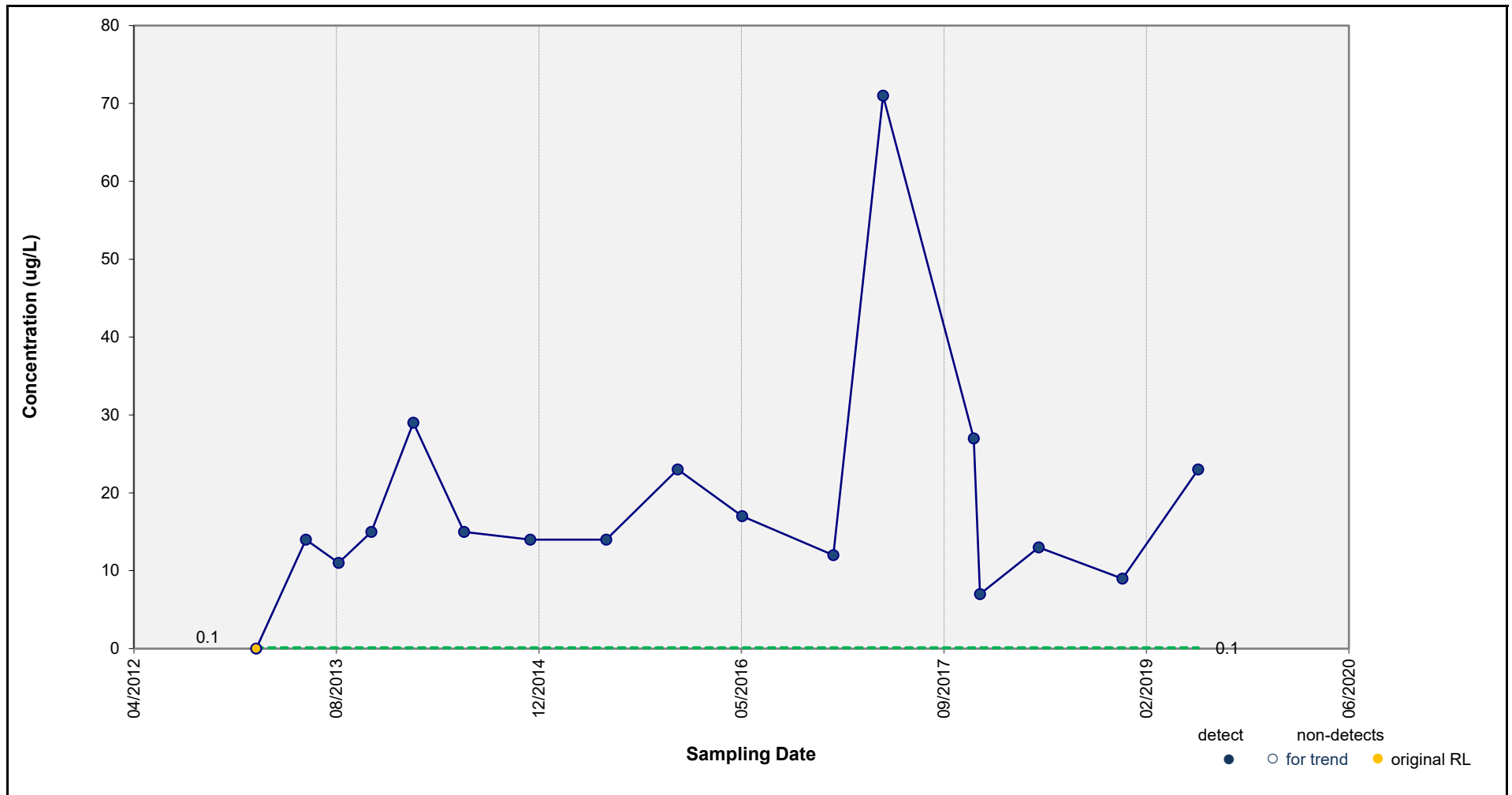
NA

Median Slope Estimate = -3.22E-03 mg/L per day  
 Confidence Interval on the Slope = -1.3E-02 to 3.6E-02 mg/L per day



**Concentration Plot: MW-12-11, Nickel**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**No Significant Trend**

p value = 0.46 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

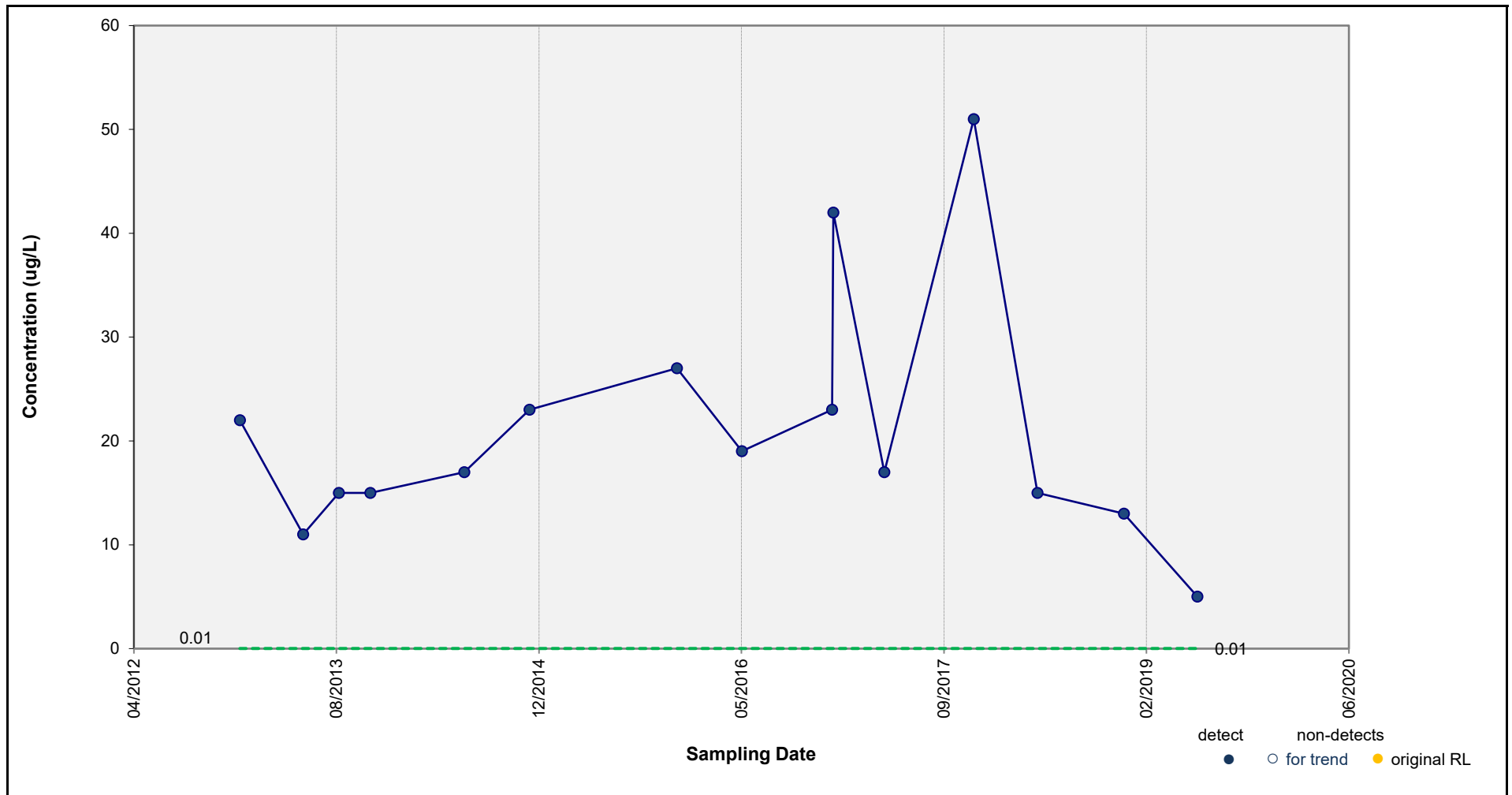
**NA**

Median Slope Estimate = 0.00E+00 mg/L per day  
 Confidence Interval on the Slope= -3.3E-03 to 5.5E-03 mg/L per day



**Concentration Plot: MW-12-13, Nickel**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



#### Results of Mann-Kendall Test for Trend:

#### No Significant Trend

p value = 0.48 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

#### Results of Sen's Estimator of Slope:

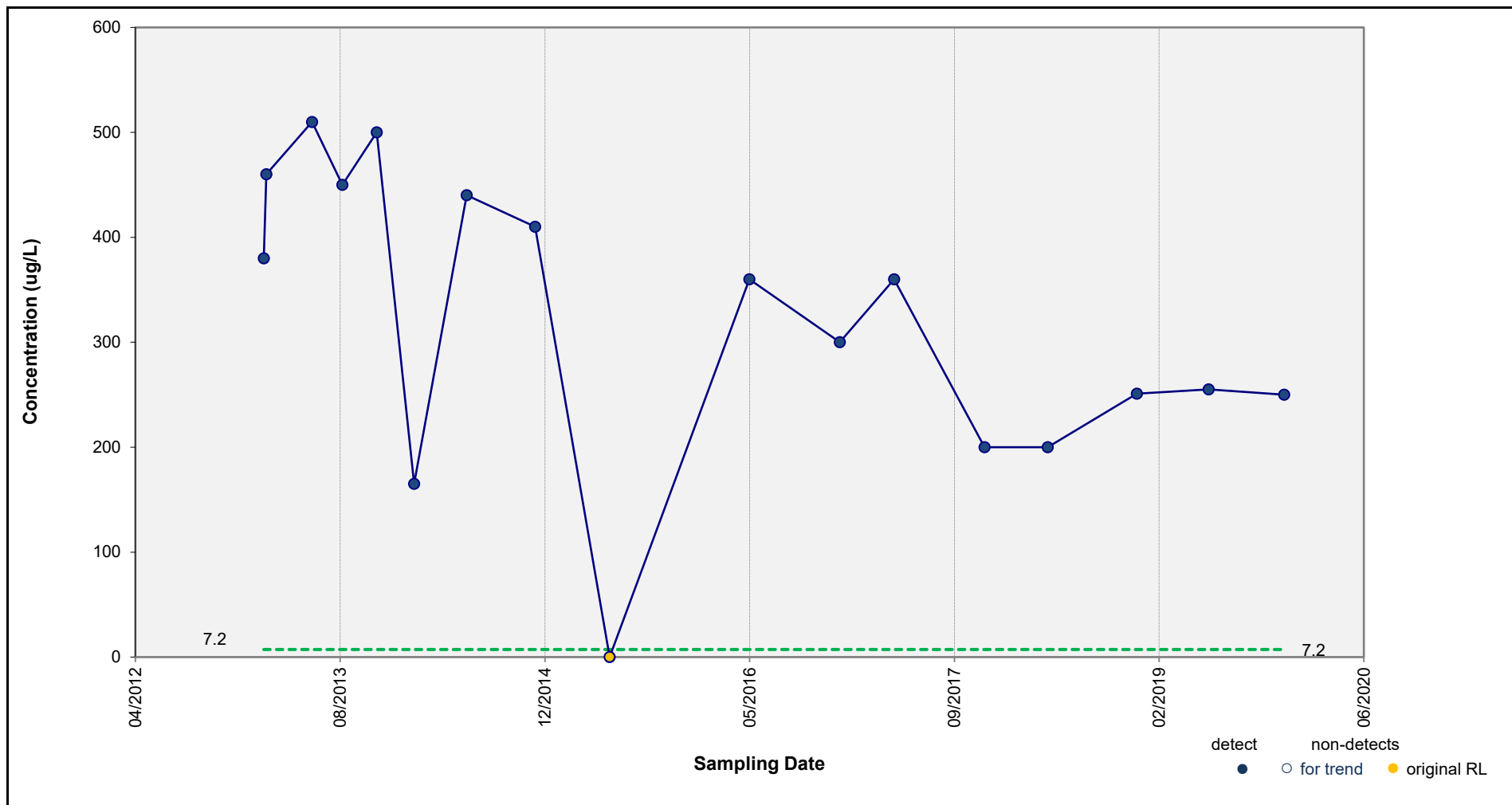
NA

Median Slope Estimate = 0.00E+00 mg/L per day  
 Confidence Interval on the Slope = -5.7E-03 to 7.0E-03 mg/L per day



**Concentration Plot: MW-12-16, Arsenic**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**DECREASING TREND**

p value =  Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

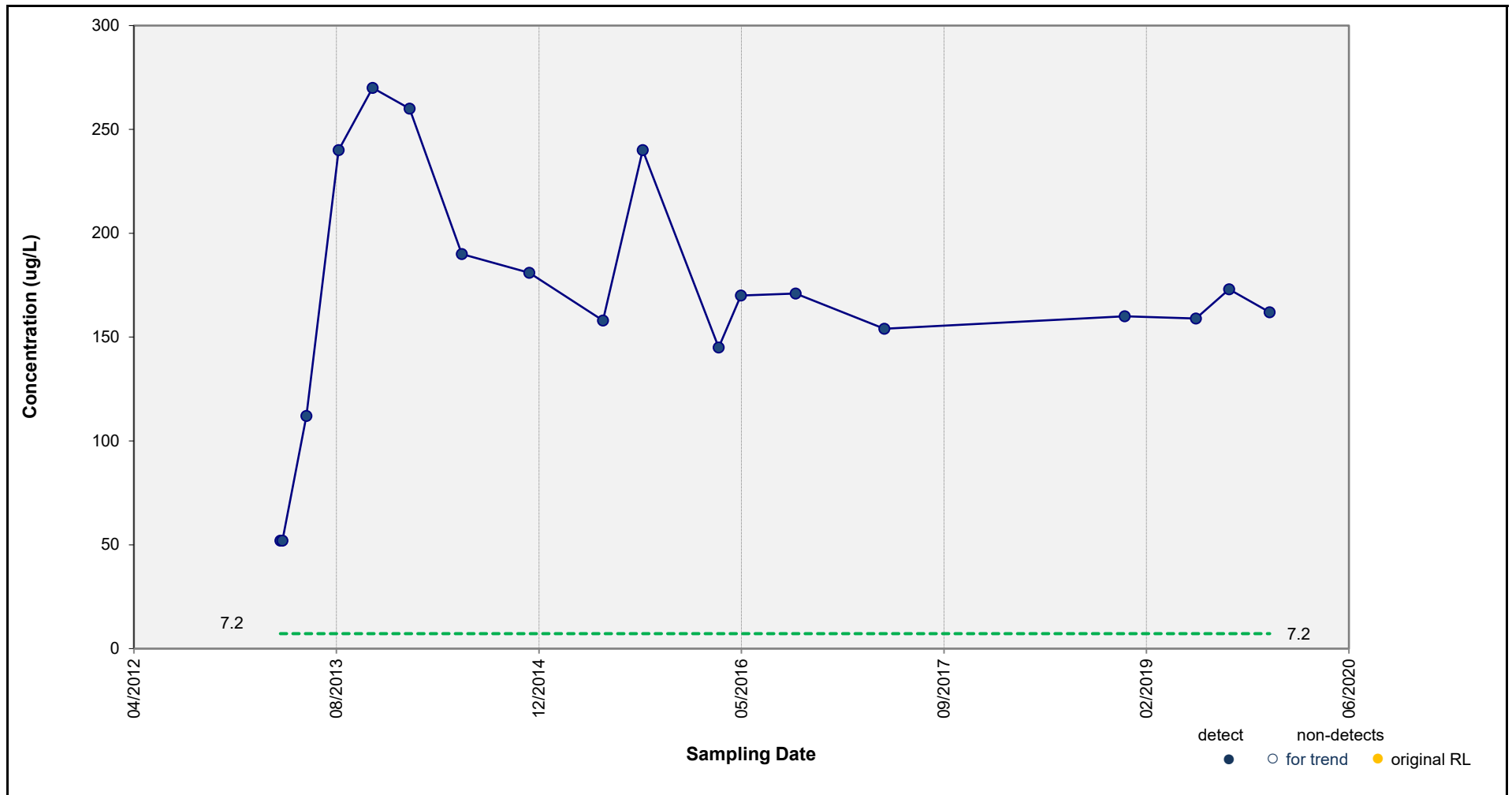
**NA**

Median Slope Estimate =  mg/L per day  
 Confidence Interval on the Slope =  to  mg/L per day



**Concentration Plot: MW-12-21, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



#### Results of Mann-Kendall Test for Trend:

#### No Significant Trend

p value = 0.50 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

#### Results of Sen's Estimator of Slope:

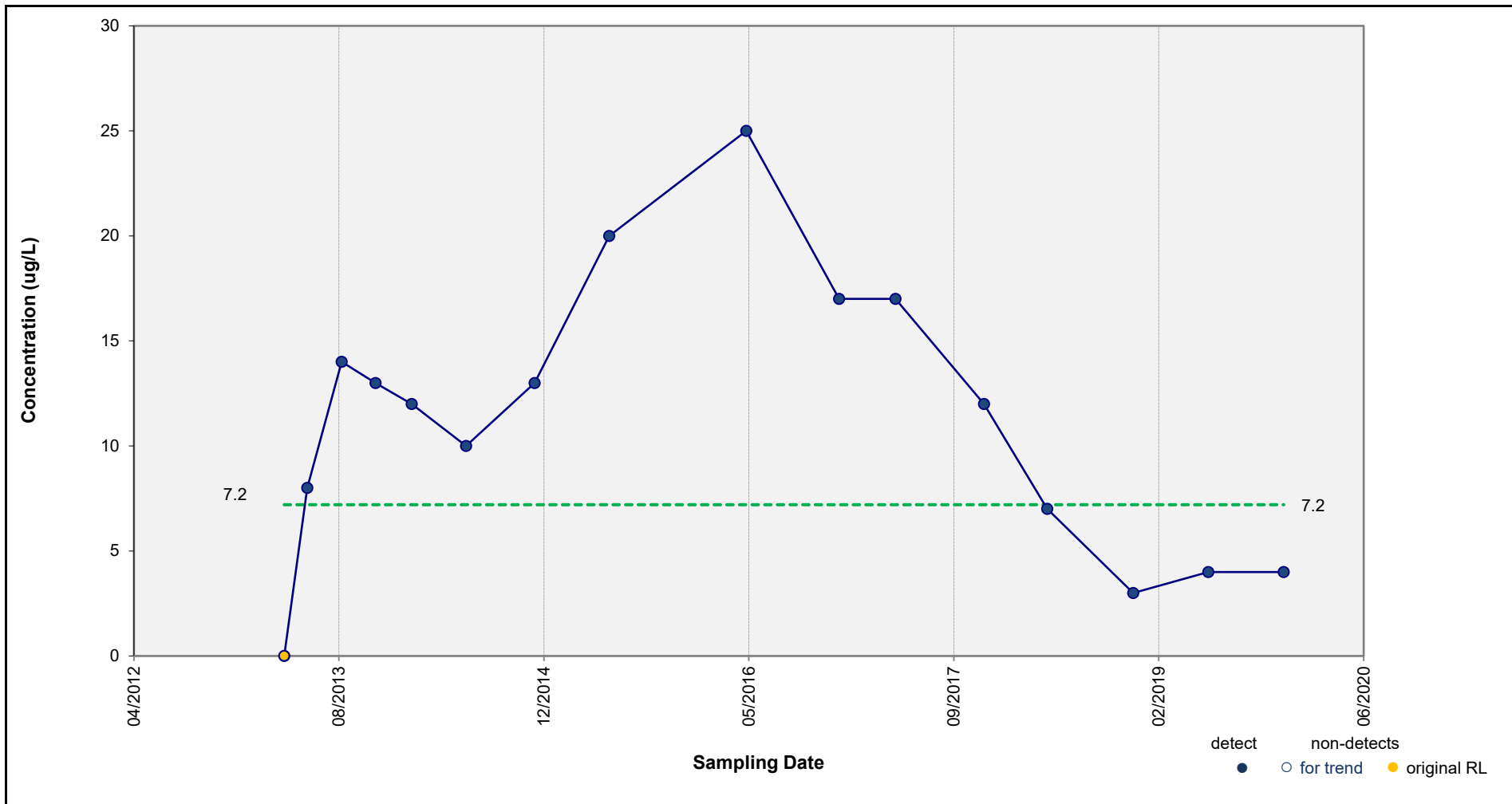
NA

Median Slope Estimate = 0.00E+00 mg/L per day  
 Confidence Interval on the Slope = -3.1E-02 to 2.4E-02 mg/L per day



**Concentration Plot: MW-13-22, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**DECREASING TREND**

p value =  Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

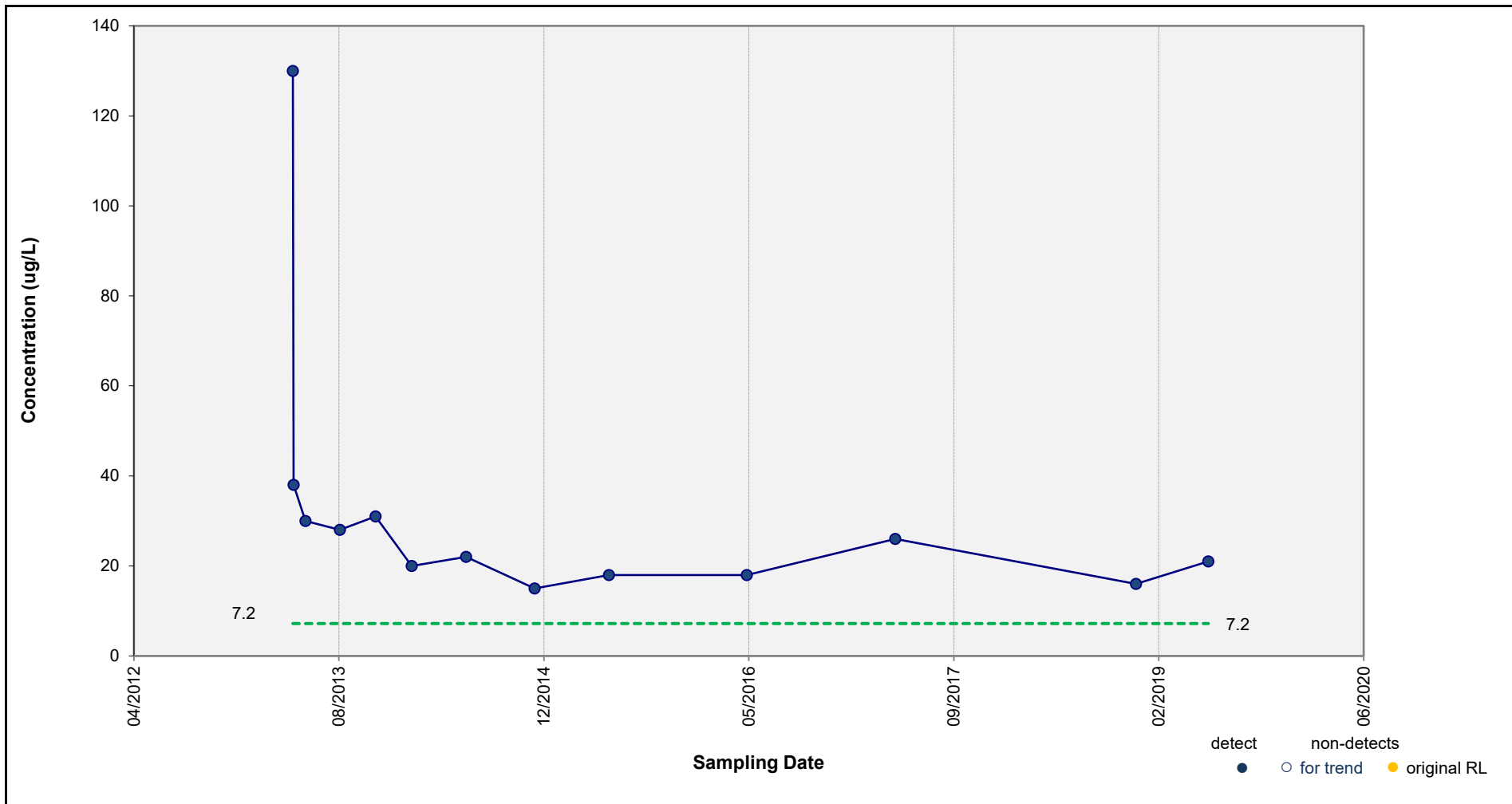
**NA**

Median Slope Estimate =  mg/L per day  
 Confidence Interval on the Slope =  to  mg/L per day



**Concentration Plot: MW-13-25, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**DECREASING TREND**

p value =  Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

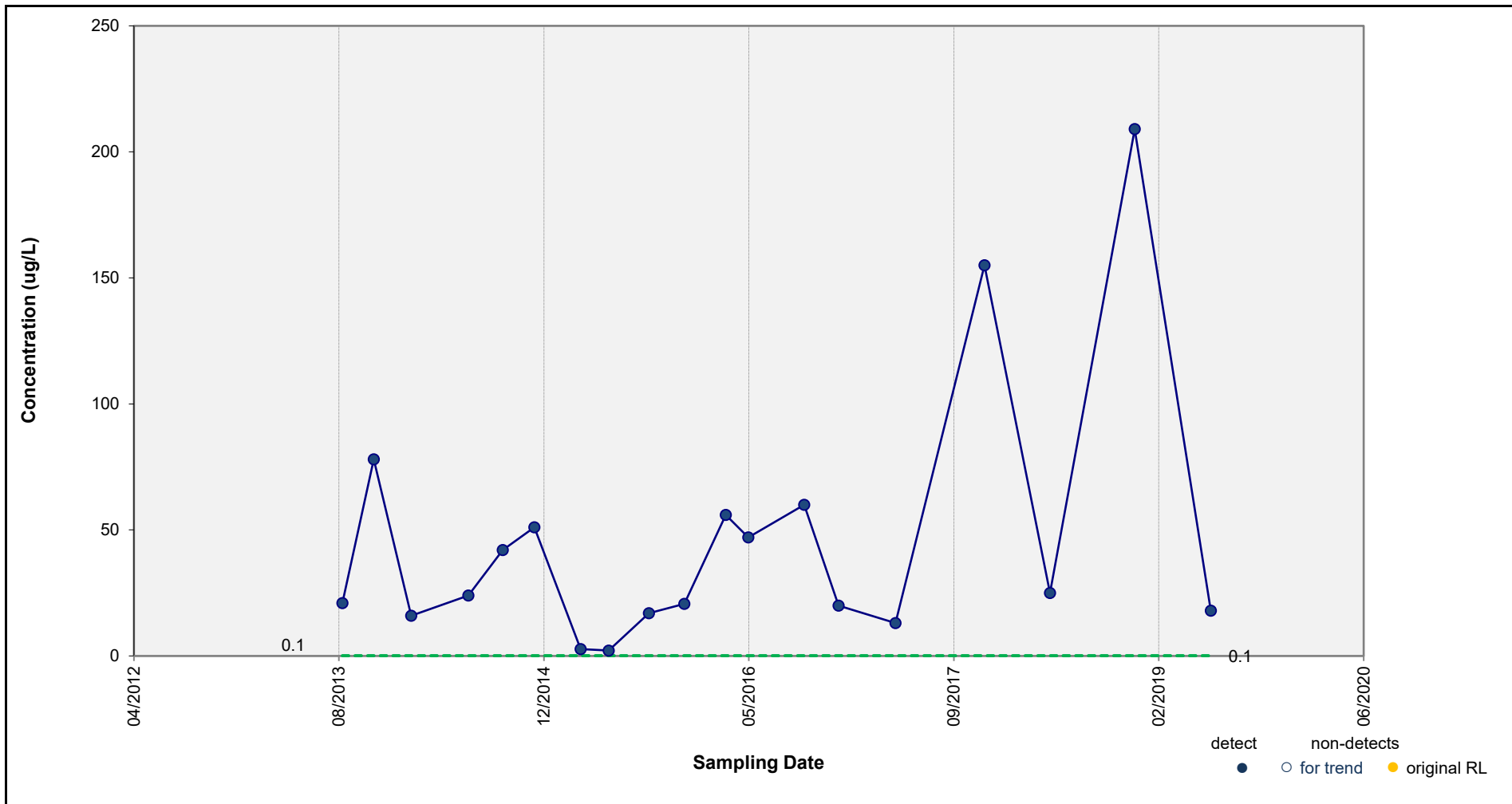
**NA**

Median Slope Estimate =  mg/L per day  
 Confidence Interval on the Slope =  to  mg/L per day



**Concentration Plot: MW-13-29, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**No Significant Trend**

p value = 0.22 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

**NA**

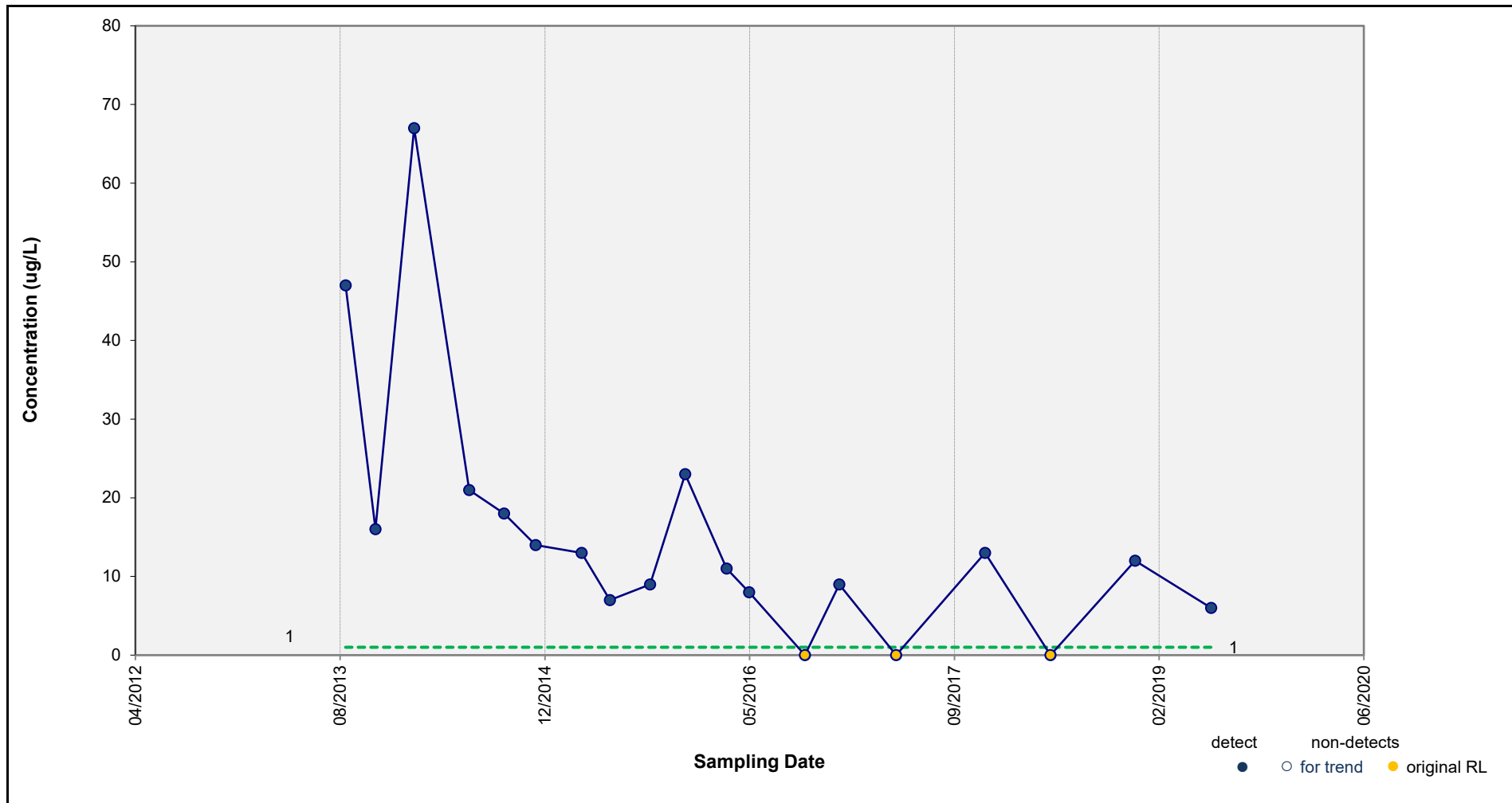
Median Slope Estimate = 8.17E-03 mg/L per day  
 Confidence Interval on the Slope = -6.7E-03 to 4.3E-02 mg/L per day



**Concentration Plot: MW-13-31, Nickel**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**





**Results of Mann-Kendall Test for Trend:**

**DECREASING TREND**

p value =  Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

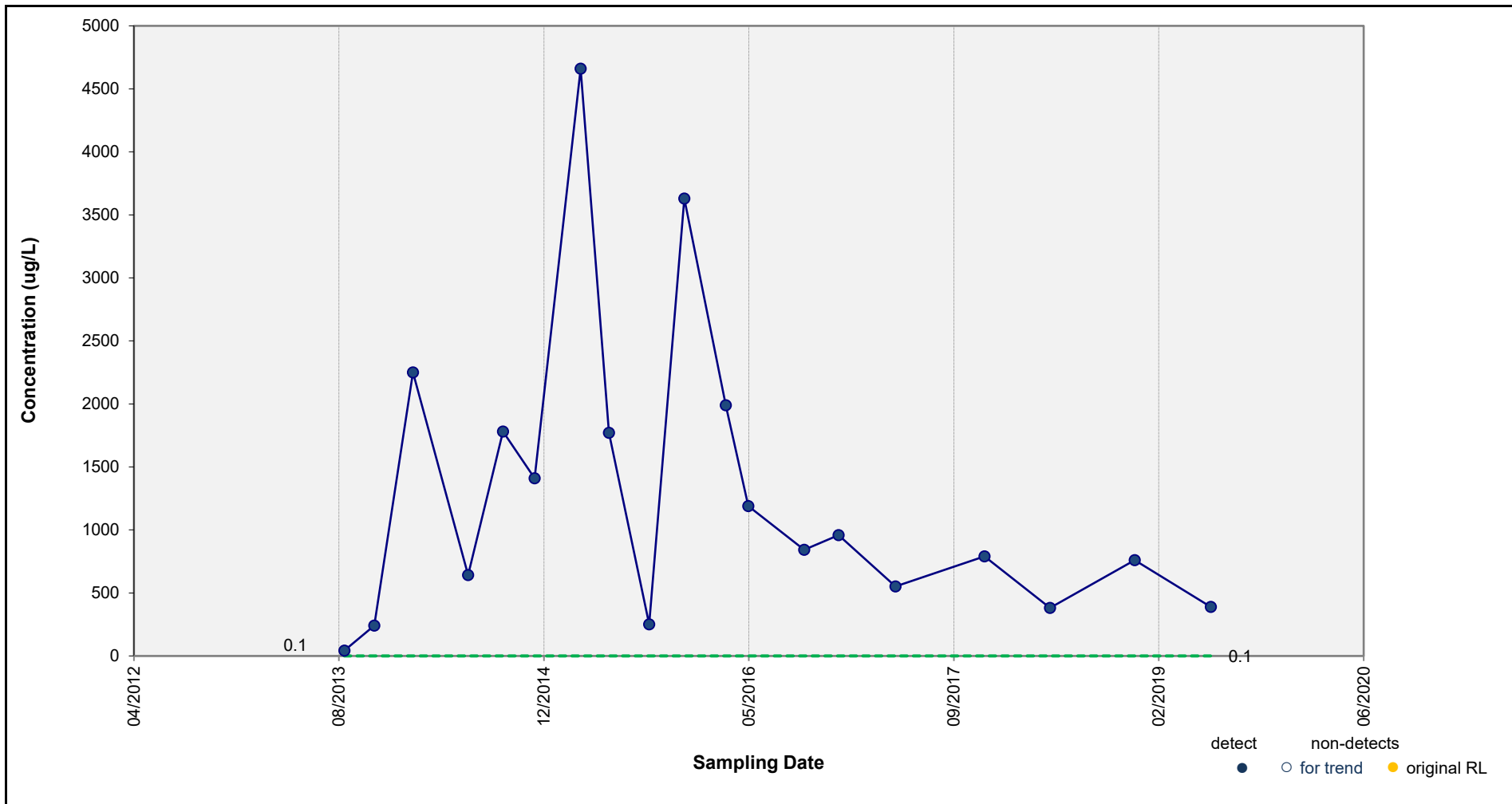
**NA**

Median Slope Estimate =  mg/L per day  
 Confidence Interval on the Slope =  to  mg/L per day



**Concentration Plot: MW-13-32, Copper**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**No Significant Trend**

p value =  Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

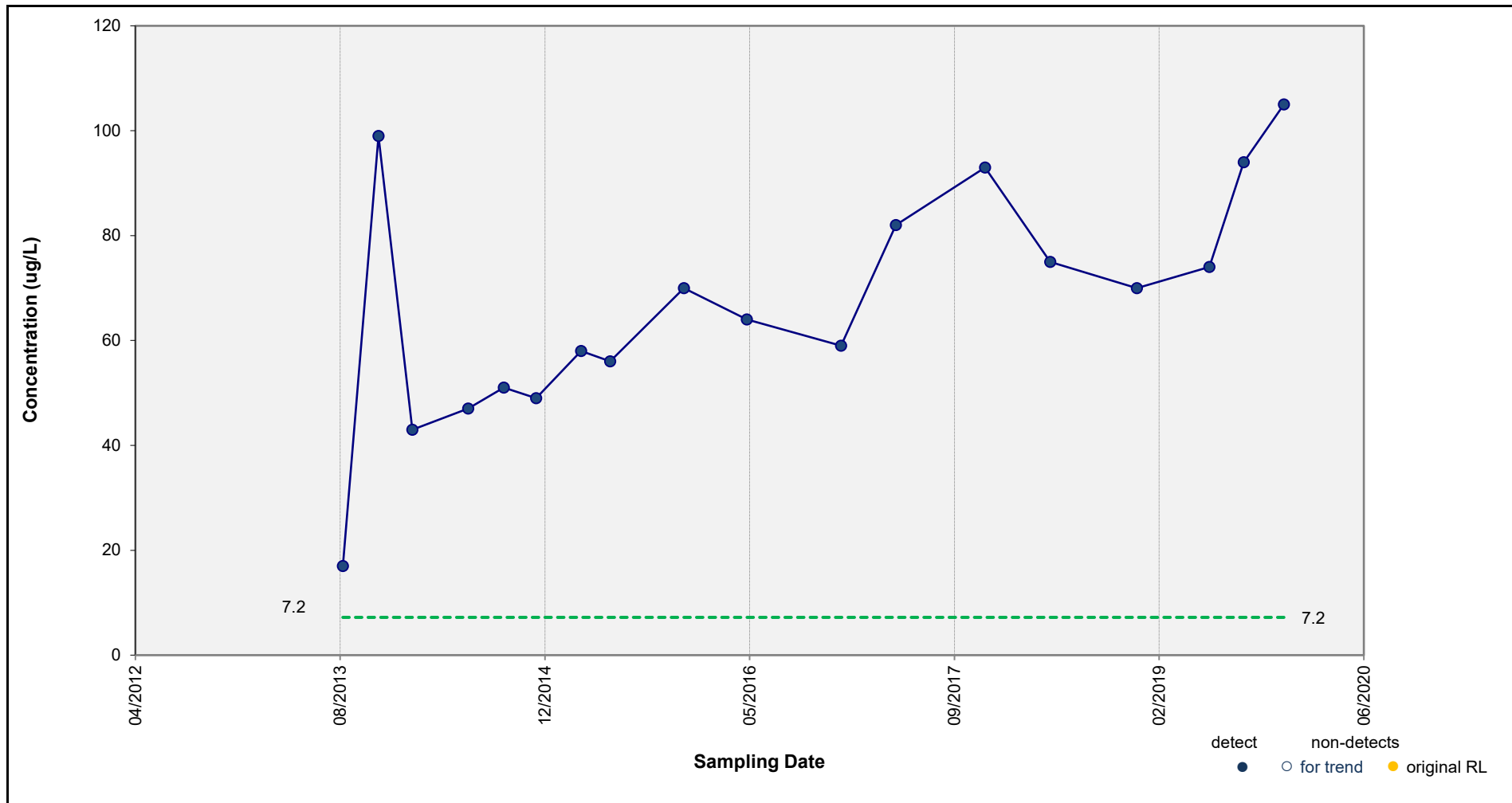
**NA**

Median Slope Estimate =  mg/L per day  
 Confidence Interval on the Slope =  to  mg/L per day



**Concentration Plot: MW-13-32, Nickel**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**INCREASING TREND**

p value =  Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

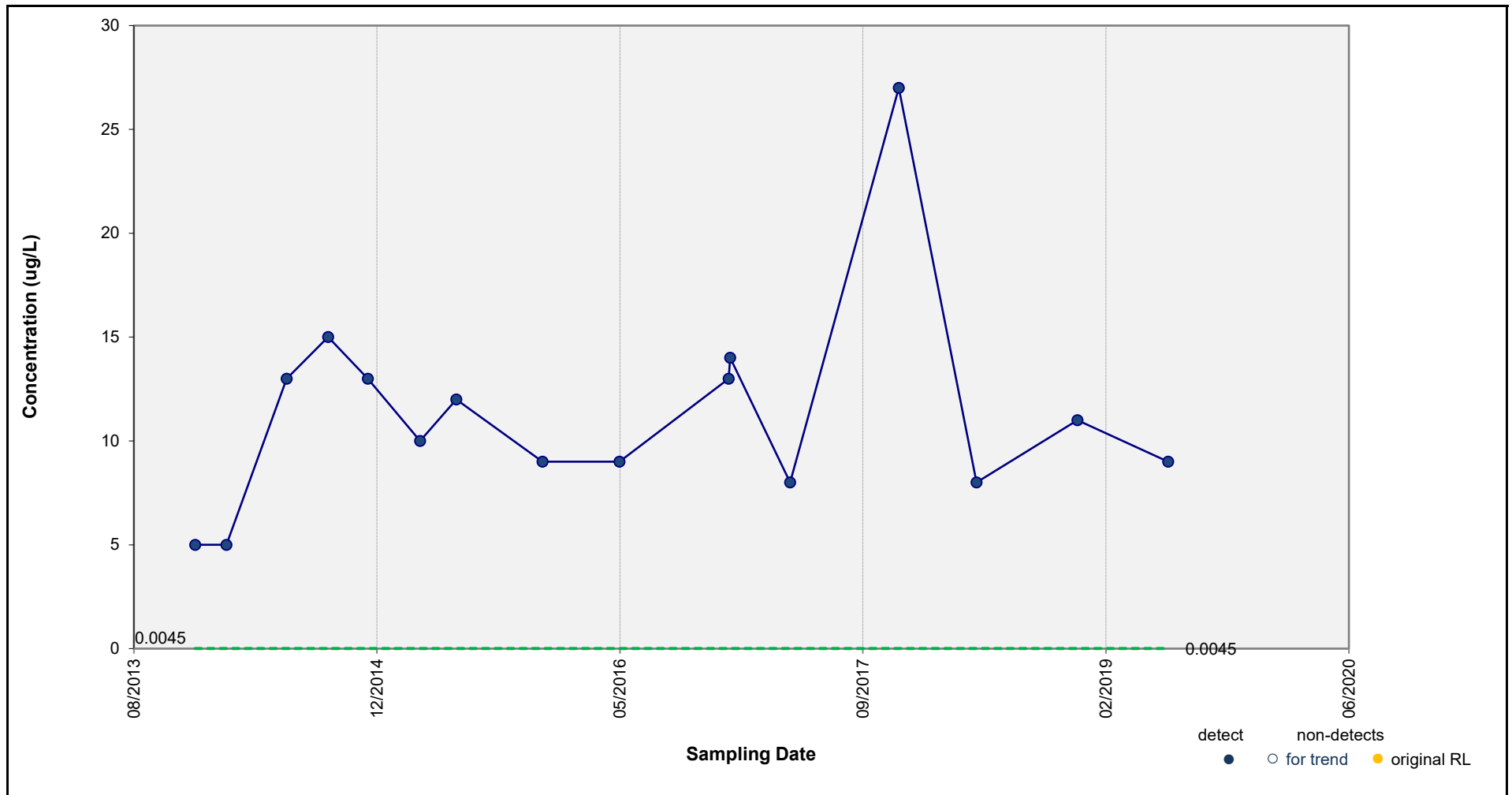
**NA**

Median Slope Estimate =  mg/L per day  
 Confidence Interval on the Slope =  to  mg/L per day



**Concentration Plot: MW-13-34, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**No Significant Trend**

p value =  Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

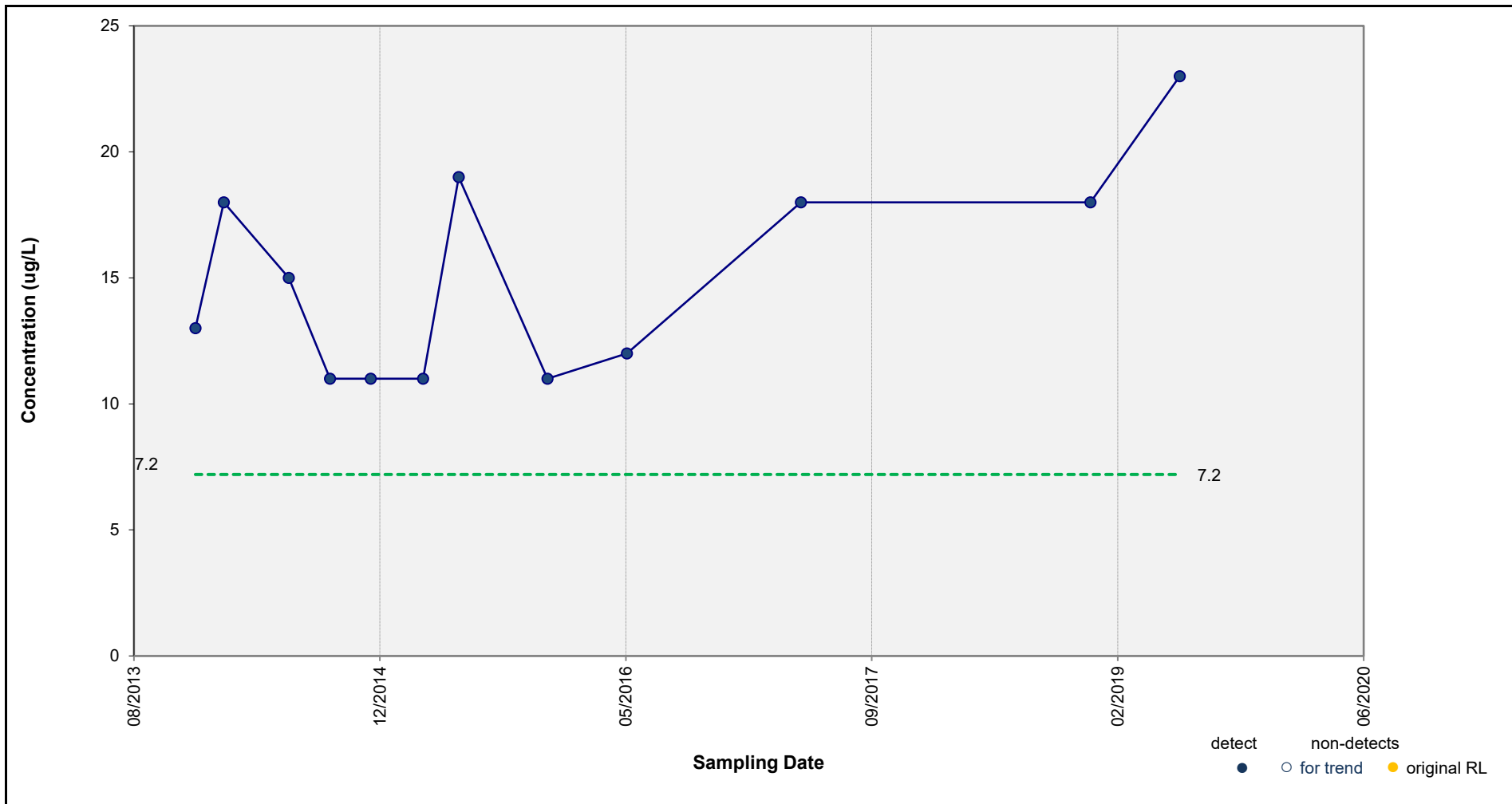
**NA**

Median Slope Estimate =  mg/L per day  
 Confidence Interval on the Slope=  to  mg/L per day



**Concentration Plot: MW-13-36R, Vanadium**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**No Significant Trend**

p value = 0.13 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

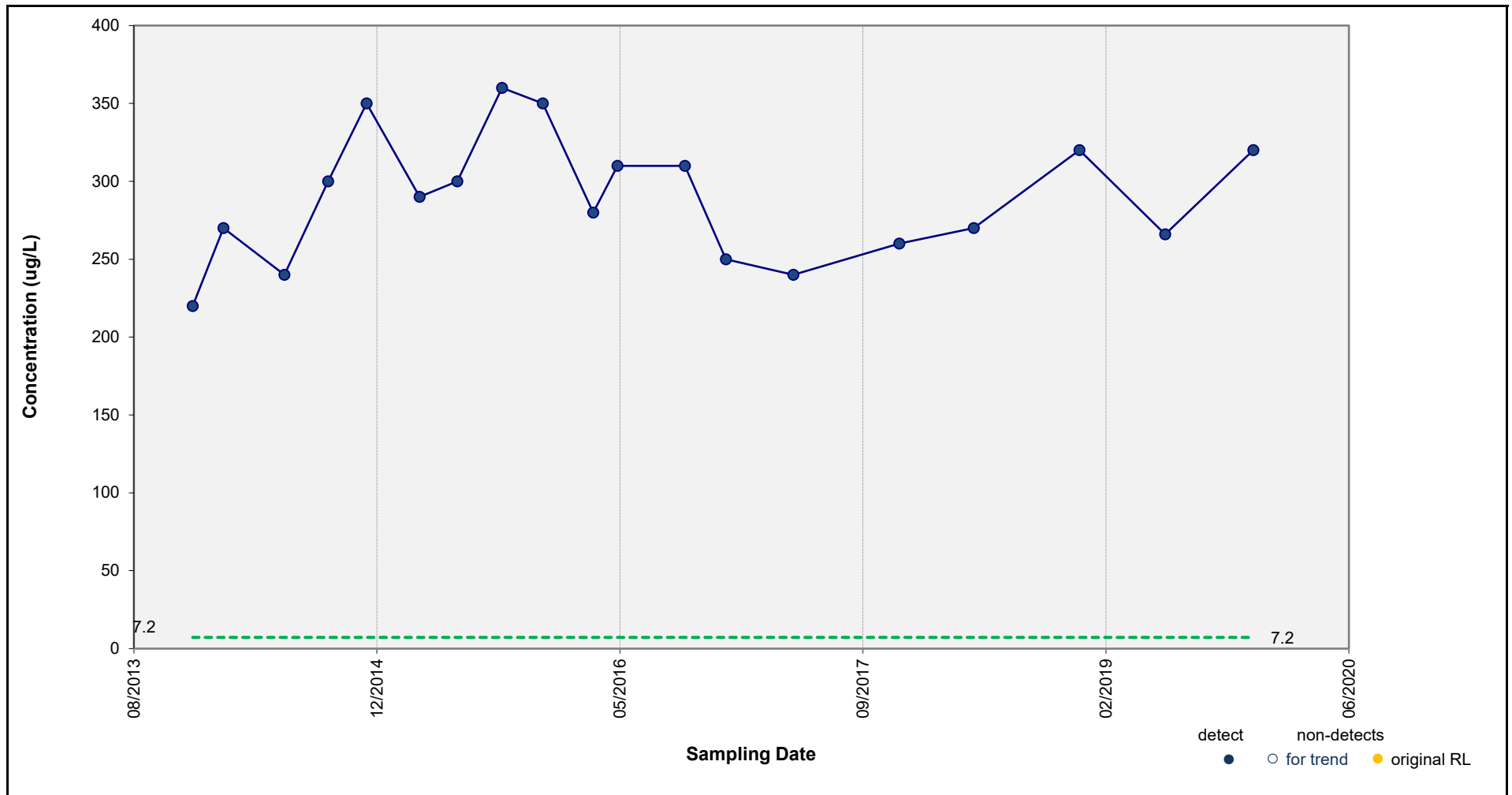
**NA**

Median Slope Estimate = 2.25E-03 mg/L per day  
Confidence Interval on the Slope= 0.0E+00 to 5.8E-03 mg/L per day



**Concentration Plot: MW-13-41, 1,4-Dioxane**  
RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**No Significant Trend**

p value = 0.31 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

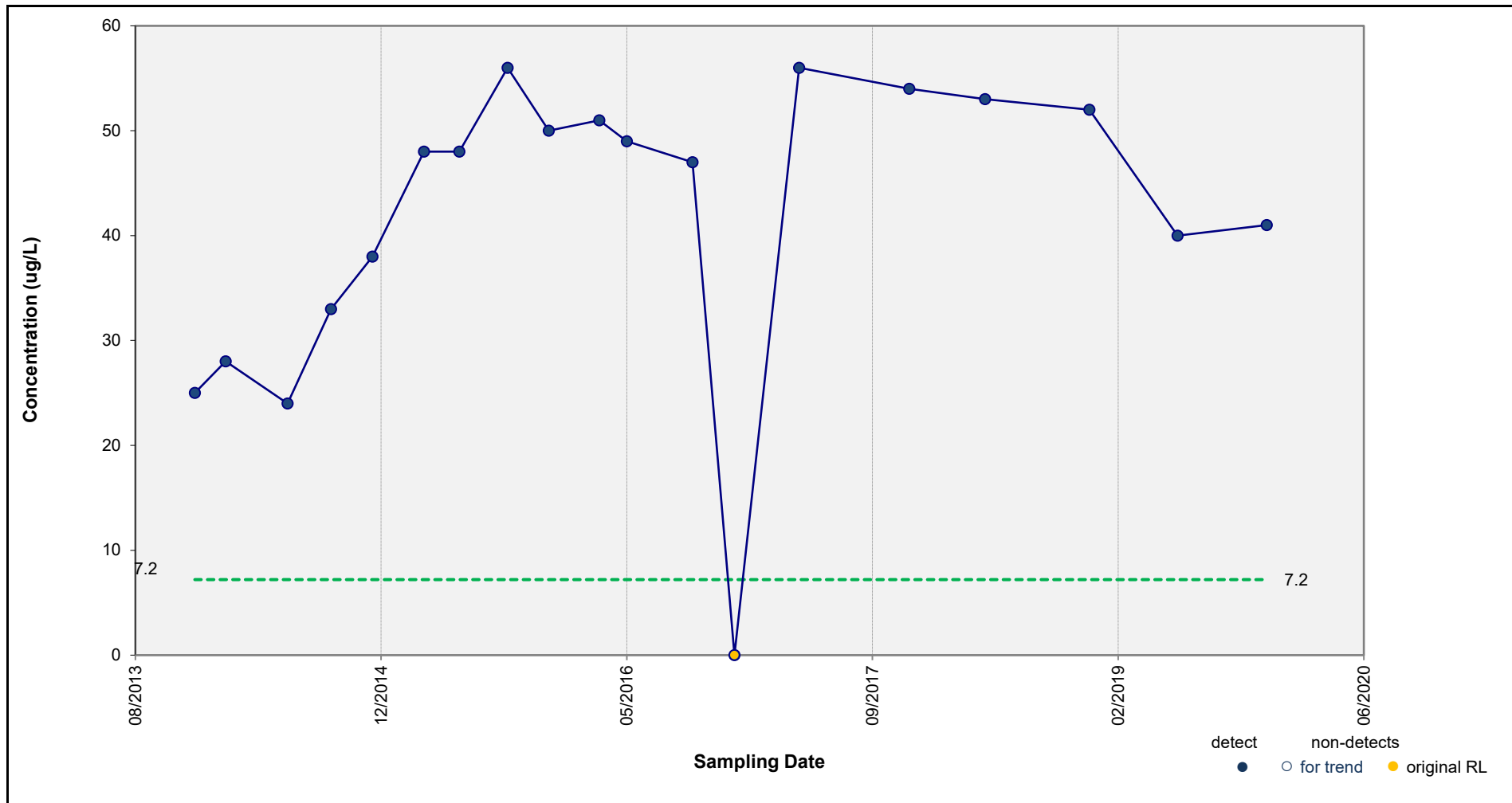
**NA**

Median Slope Estimate = 1.10E-02 mg/L per day  
 Confidence Interval on the Slope = -2.3E-02 to 2.9E-02 mg/L per day



**Concentration Plot: MW-13-43, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**INCREASING TREND**

p value = 0.01 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

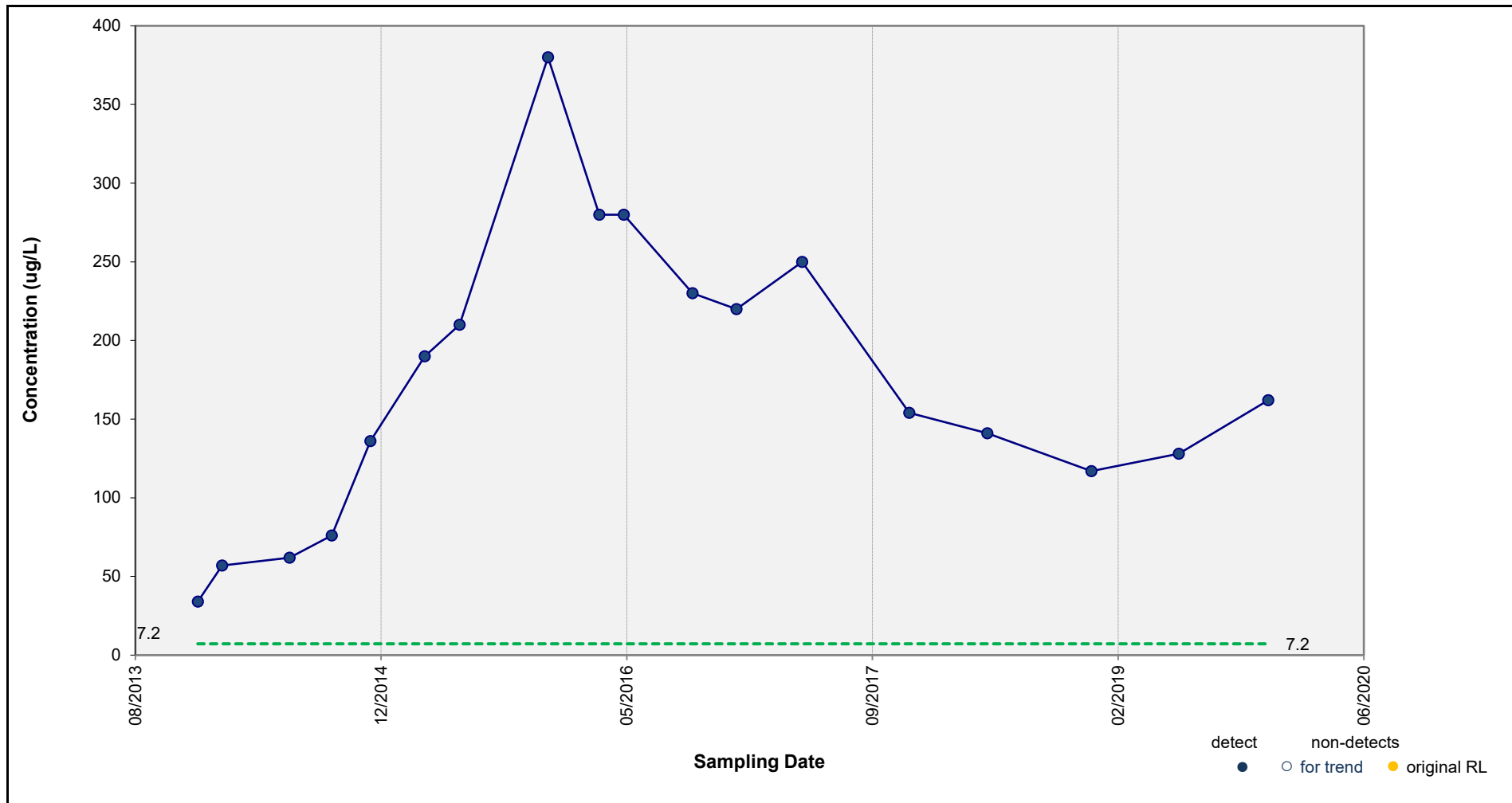
**NA**

Median Slope Estimate = 8.83E-03 mg/L per day  
Confidence Interval on the Slope = 3.1E-03 to 1.8E-02 mg/L per day



**Concentration Plot: MW-13-45, 1,4-Dioxane**  
RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**No Significant Trend**

p value = 0.11 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

**NA**

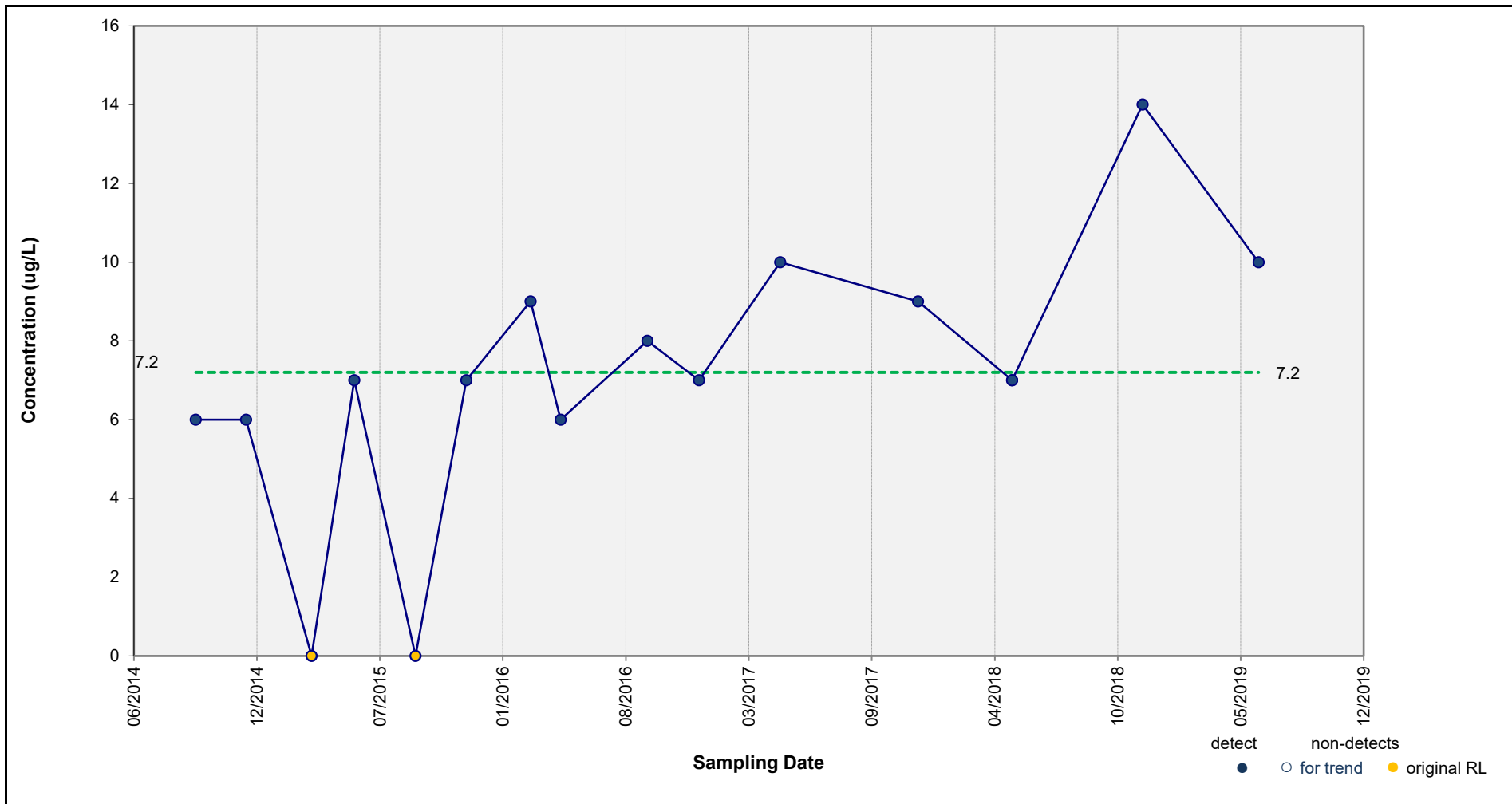
Median Slope Estimate = 4.71E-02 mg/L per day  
 Confidence Interval on the Slope= -3.4E-02 to 1.3E-01 mg/L per day



**Concentration Plot: MW-13-48, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**





**Results of Mann-Kendall Test for Trend:**

**INCREASING TREND**

p value = 0.01 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

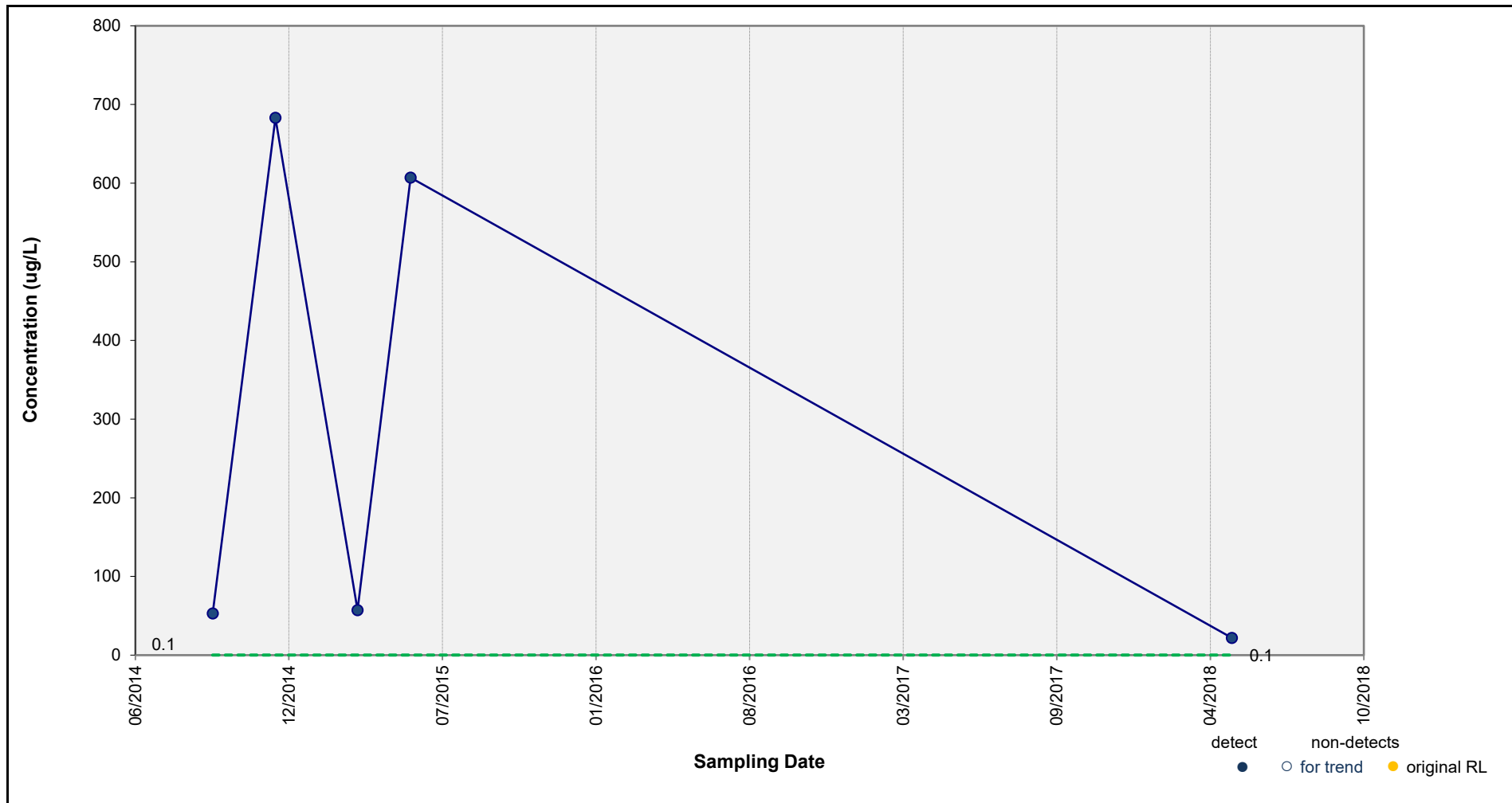
NA

Median Slope Estimate = 2.27E-03 mg/L per day  
Confidence Interval on the Slope= 0.0E+00 to 3.5E-03 mg/L per day



**Concentration Plot: MW-14-56, 1,4-Dioxane**  
RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



#### Results of Mann-Kendall Test for Trend:

#### No Significant Trend

p value = 0.41 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

#### Results of Sen's Estimator of Slope:

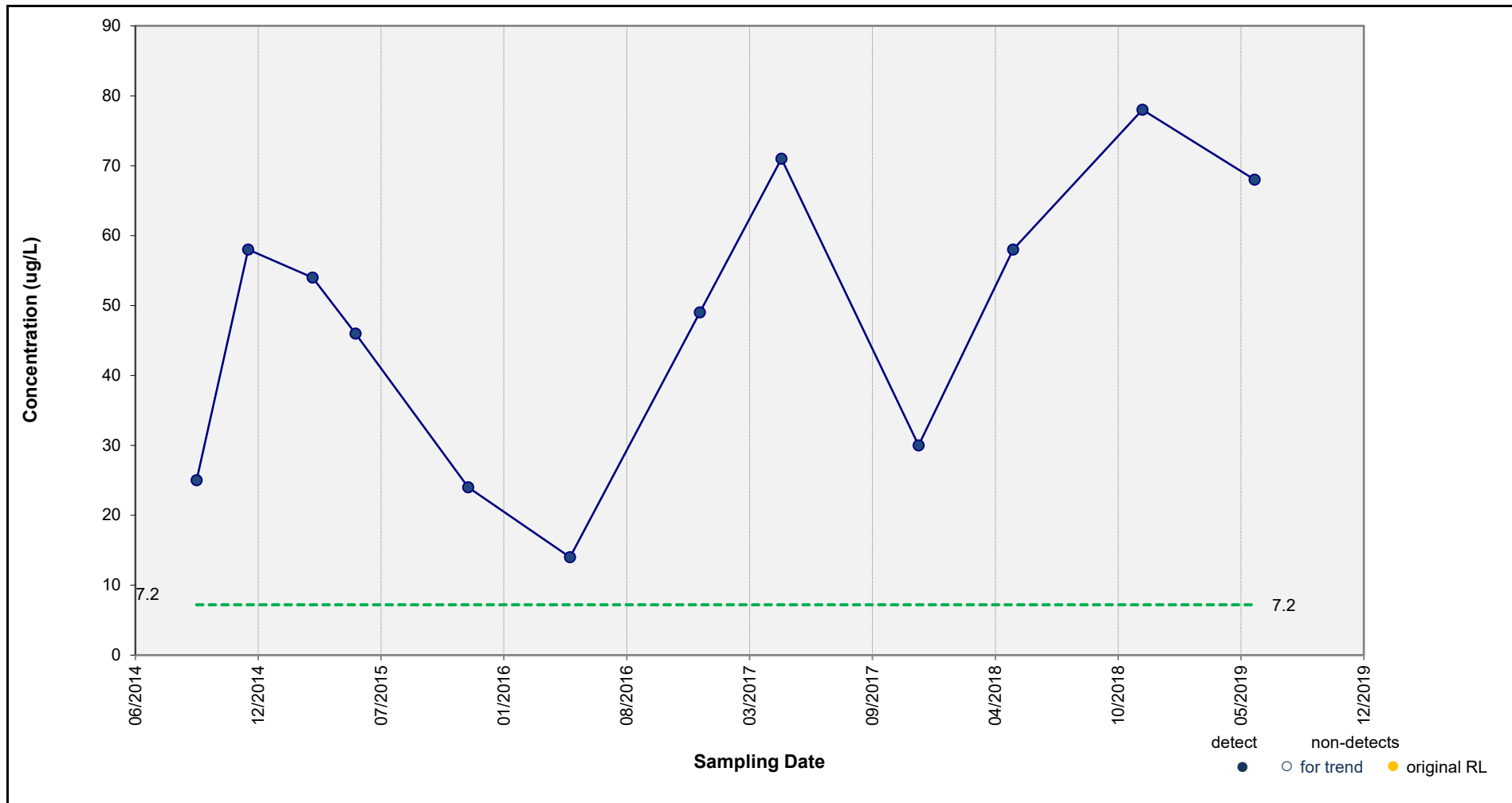
NA

Median Slope Estimate = -2.70E-02 mg/L per day  
 Confidence Interval on the Slope = -2.4E+00 to 4.1E+00 mg/L per day



**Concentration Plot: MW-14-56, Nickel**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**INCREASING TREND**

p value = 0.08 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

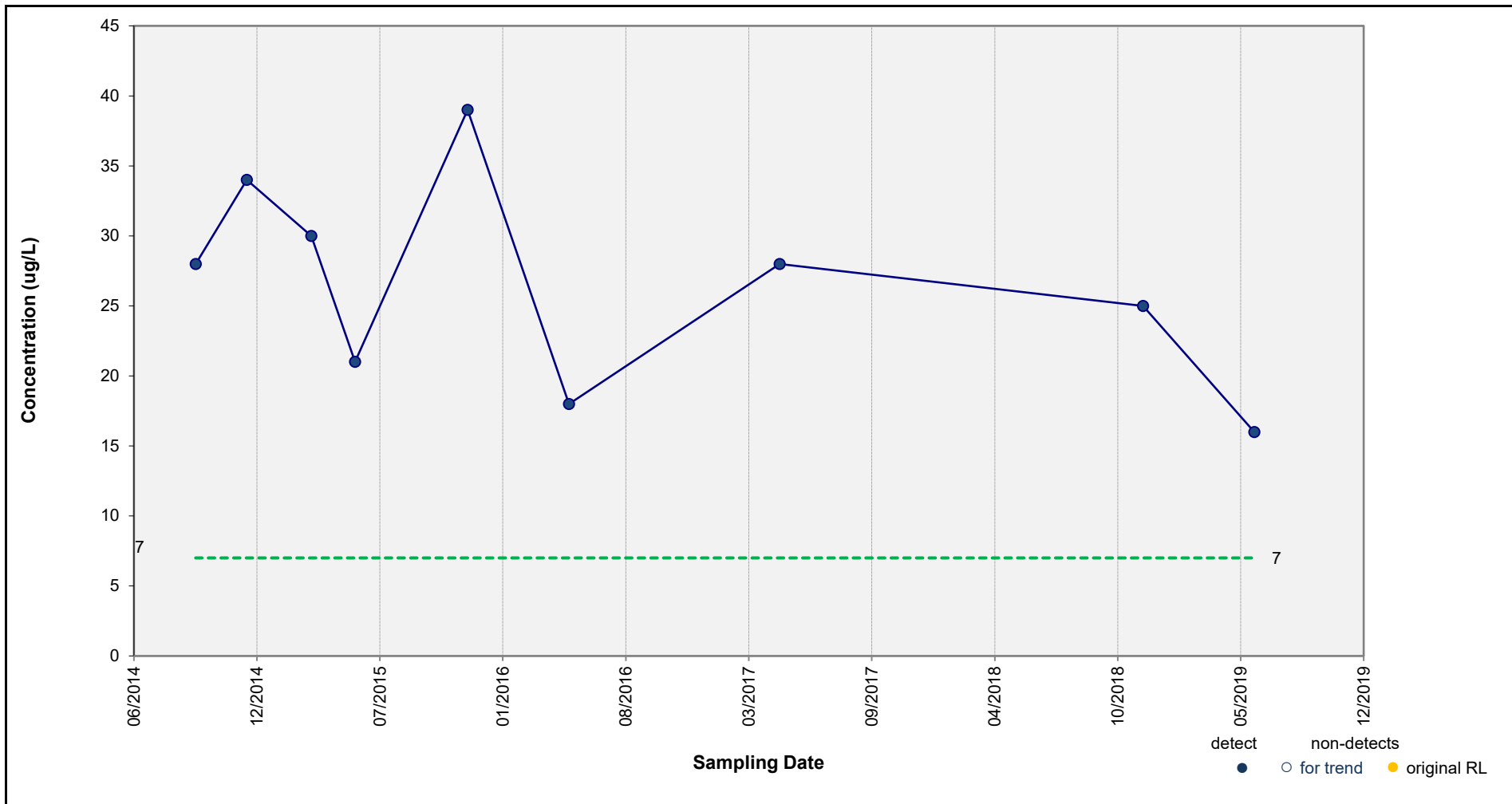
NA

Median Slope Estimate = 1.50E-02 mg/L per day  
Confidence Interval on the Slope = -3.8E-03 to 3.4E-02 mg/L per day



**Concentration Plot: MW-14-58, 1,4-Dioxane**  
RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**DECREASING TREND**

p value = 0.08 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

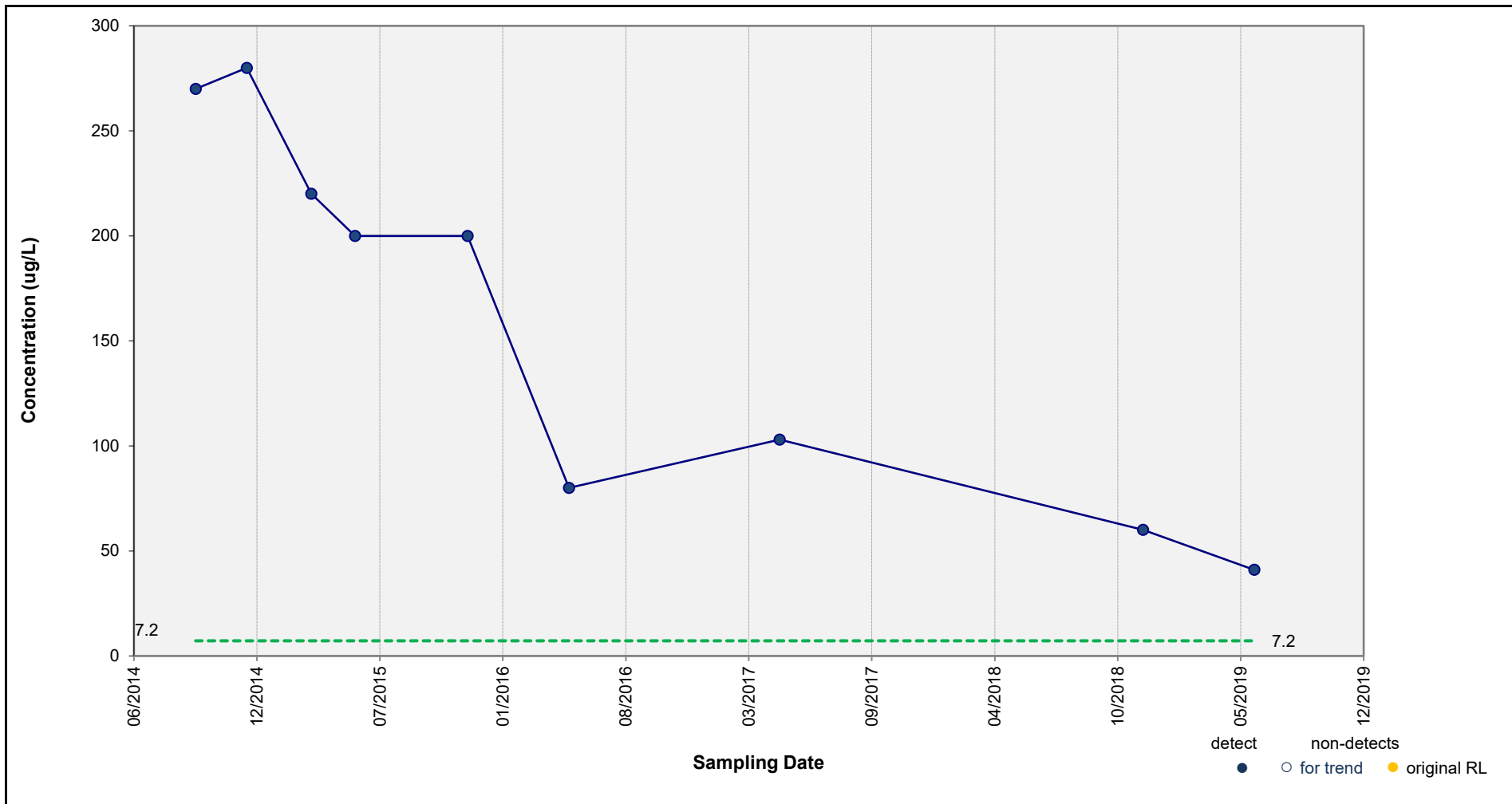
**NA**

Median Slope Estimate = -6.55E-03 mg/L per day  
 Confidence Interval on the Slope = -1.8E-02 to -2.8E-04 mg/L per day



**Concentration Plot: MW-14-59, 1,1-Dichloroethene**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**DECREASING TREND**

p value =  Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

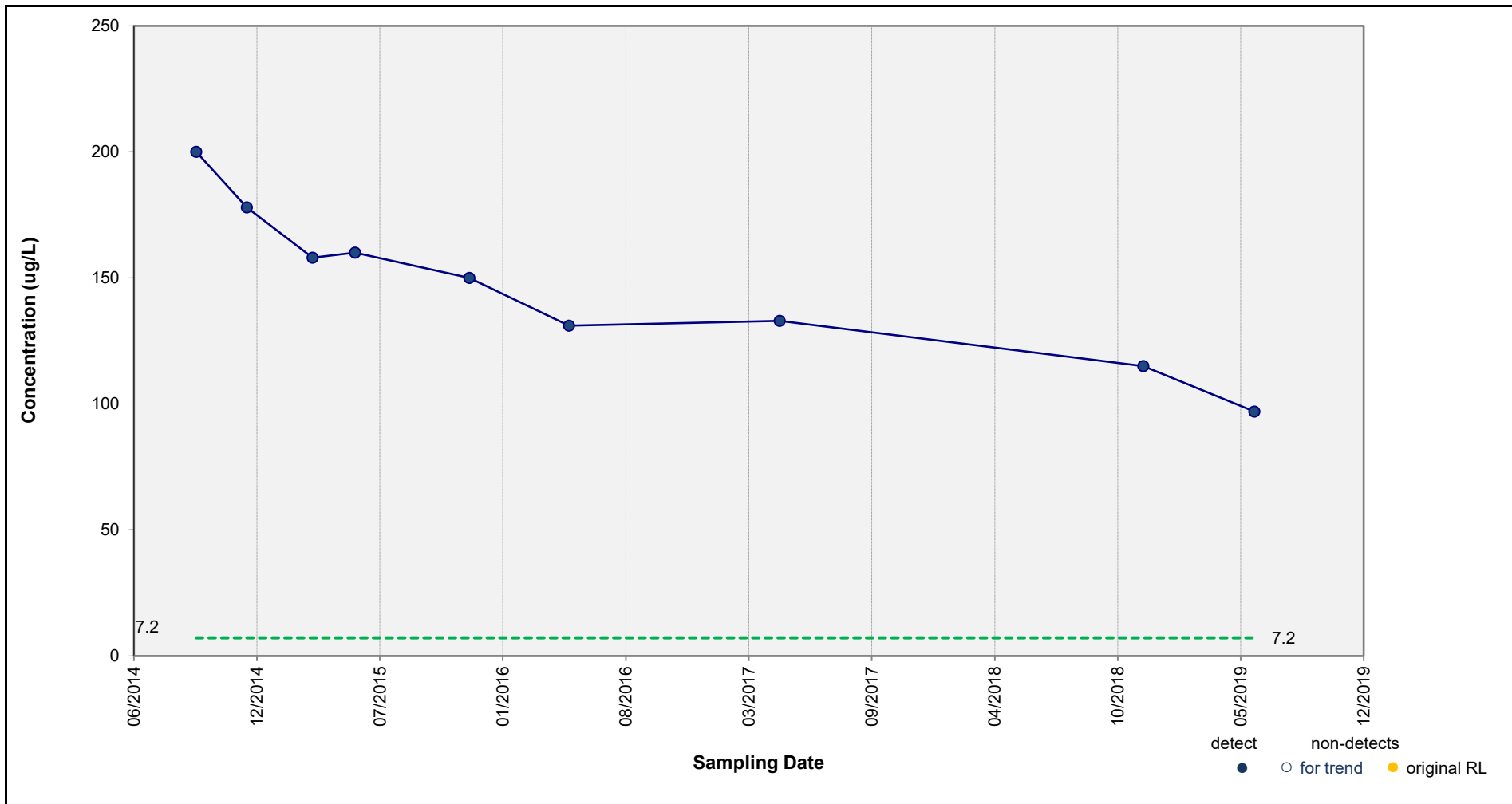
**NA**

Median Slope Estimate =  mg/L per day  
Confidence Interval on the Slope =  to  mg/L per day



**Concentration Plot: MW-14-59, 1,4-Dioxane**  
RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**DECREASING TREND**

p value = **<0.001** Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

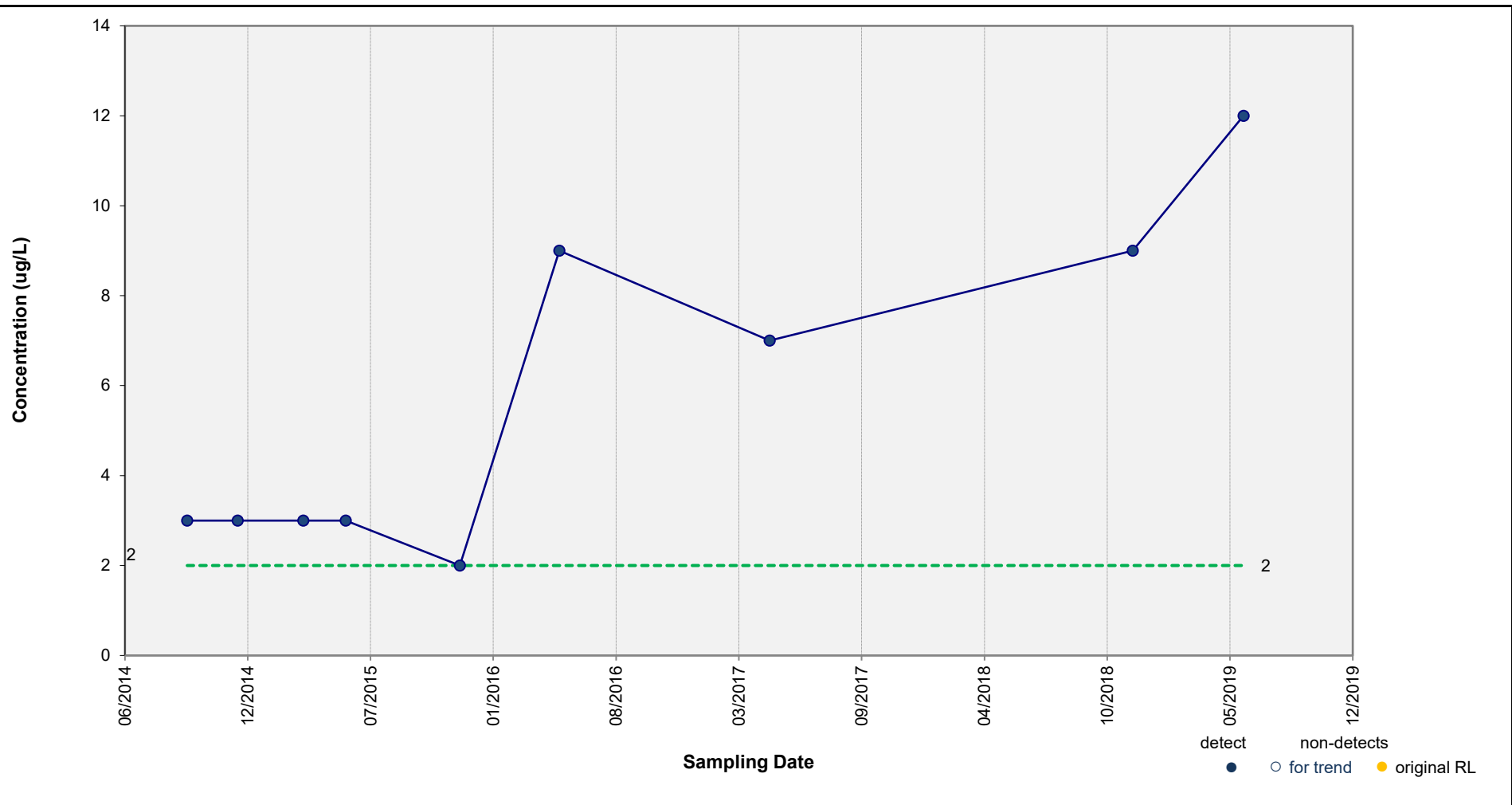
**NA**

Median Slope Estimate = **-5.07E-02** mg/L per day  
 Confidence Interval on the Slope = **-8.9E-02** to **-3.6E-02** mg/L per day



**Concentration Plot: MW-14-60, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**INCREASING TREND**

p value = **0.03** Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

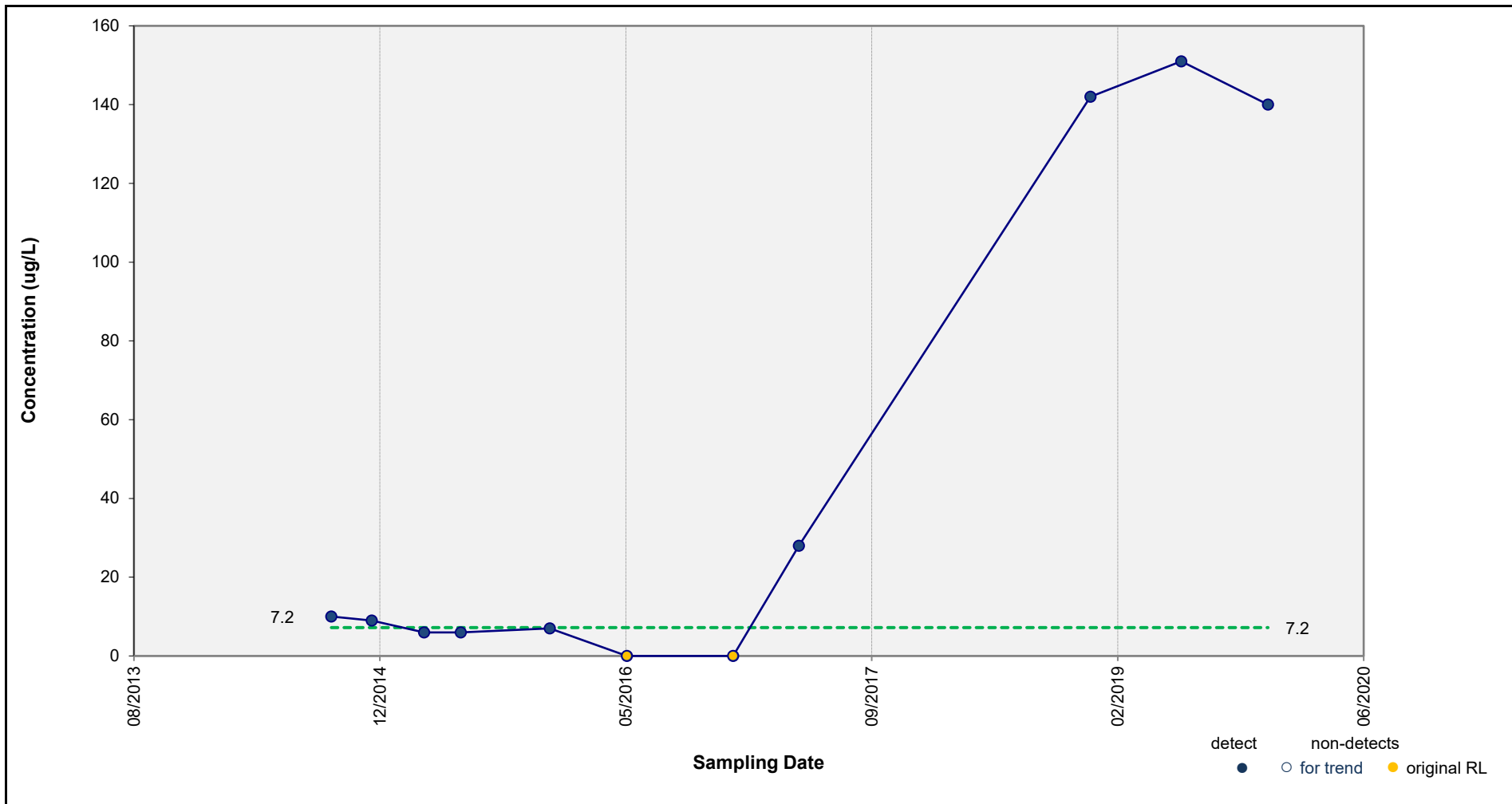
**NA**

Median Slope Estimate = **4.53E-03** mg/L per day  
 Confidence Interval on the Slope = **0.0E+00** to **6.0E-03** mg/L per day



**Concentration Plot: MW-14-60, Vinyl chloride**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**INCREASING TREND**

p value = 0.05 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

**NA**

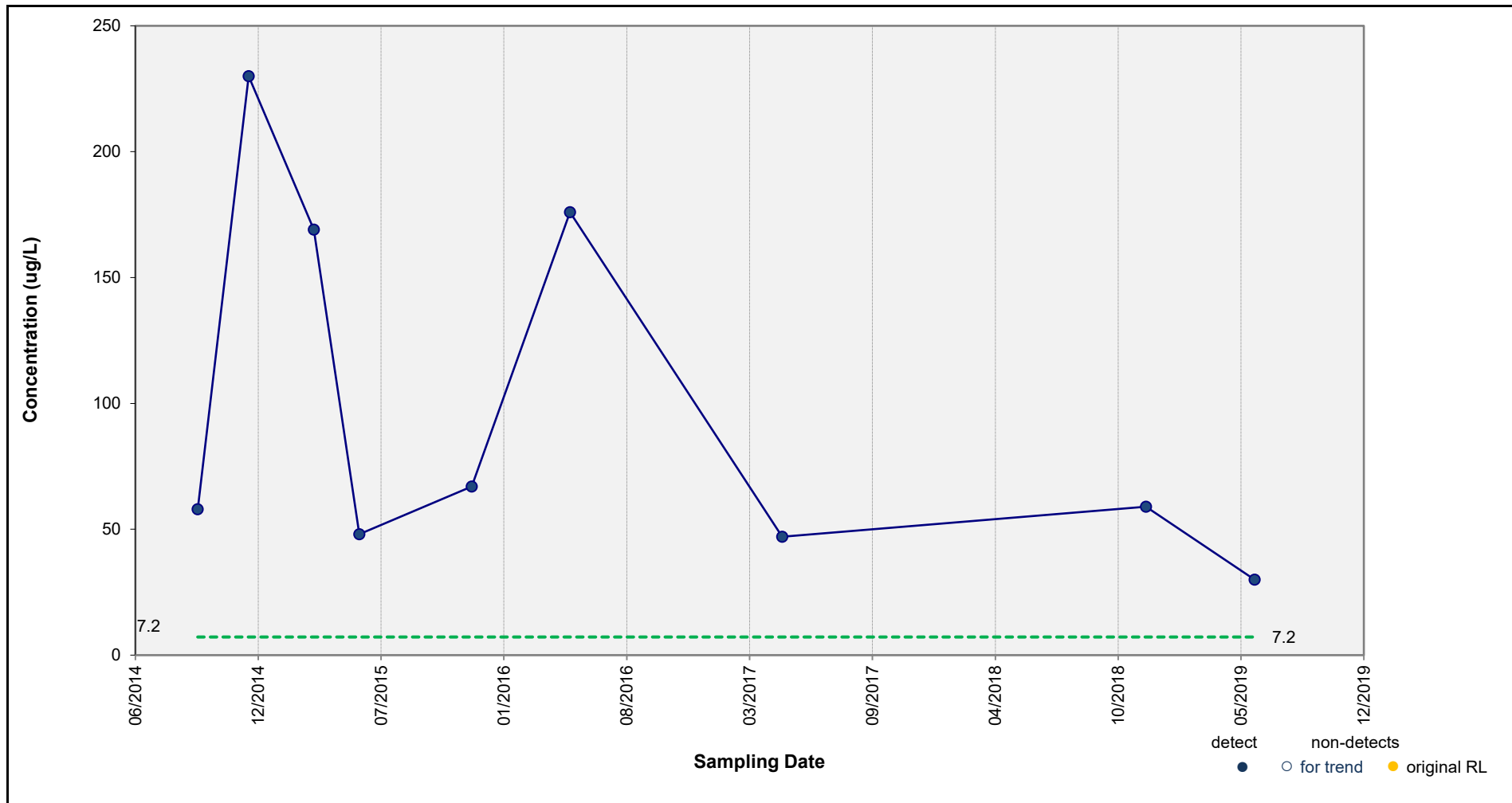
Median Slope Estimate = 5.85E-02 mg/L per day  
 Confidence Interval on the Slope= 6.0E-04 to 9.0E-02 mg/L per day



**Concentration Plot: MW-14-61, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**





**Results of Mann-Kendall Test for Trend:**

**DECREASING TREND**

p value = 0.09 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

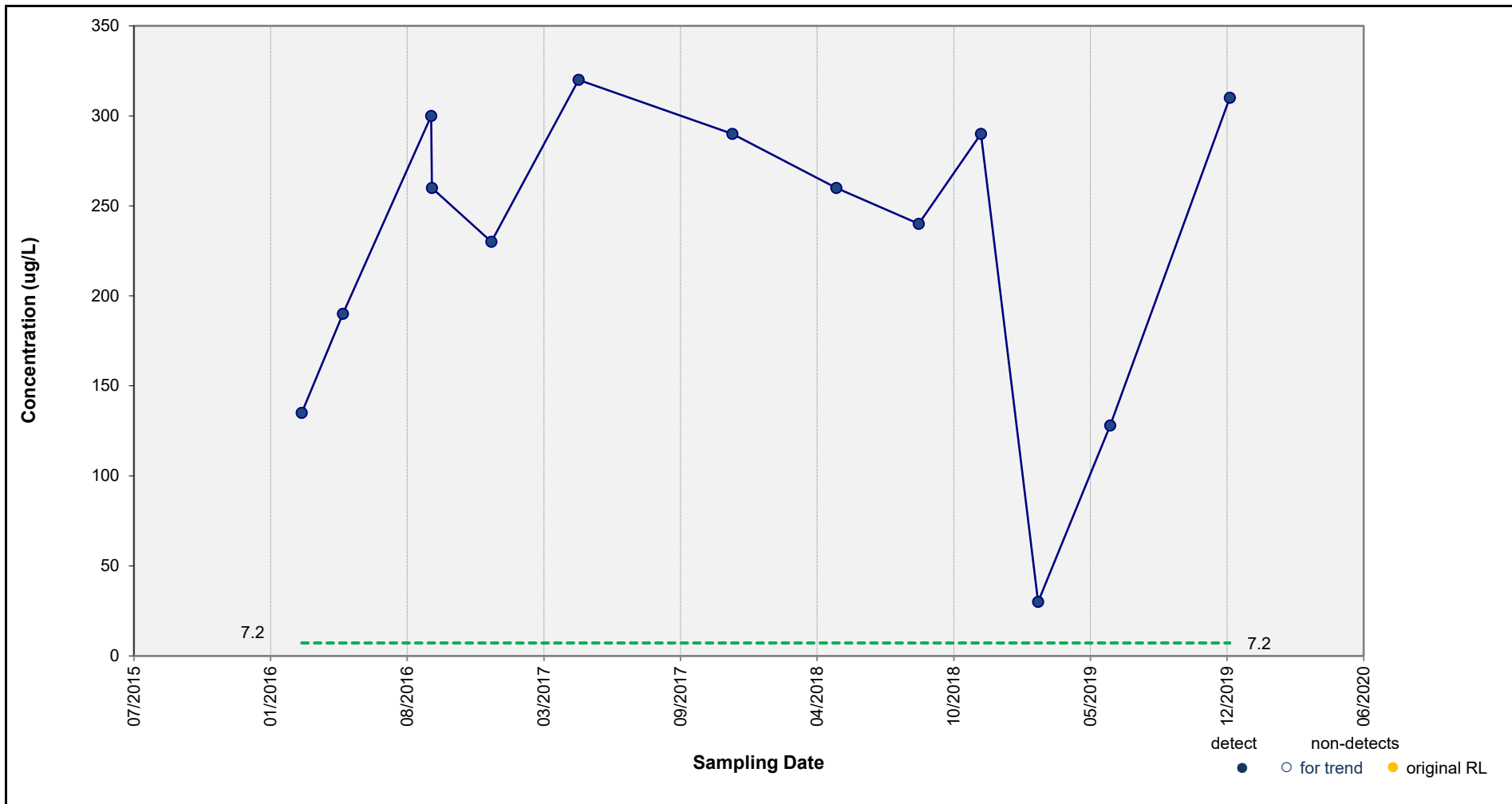
**NA**

Median Slope Estimate = -3.35E-02 mg/L per day  
 Confidence Interval on the Slope = -1.3E-01 to 4.1E-04 mg/L per day



**Concentration Plot: MW-14-62, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**No Significant Trend**

p value = 0.43 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

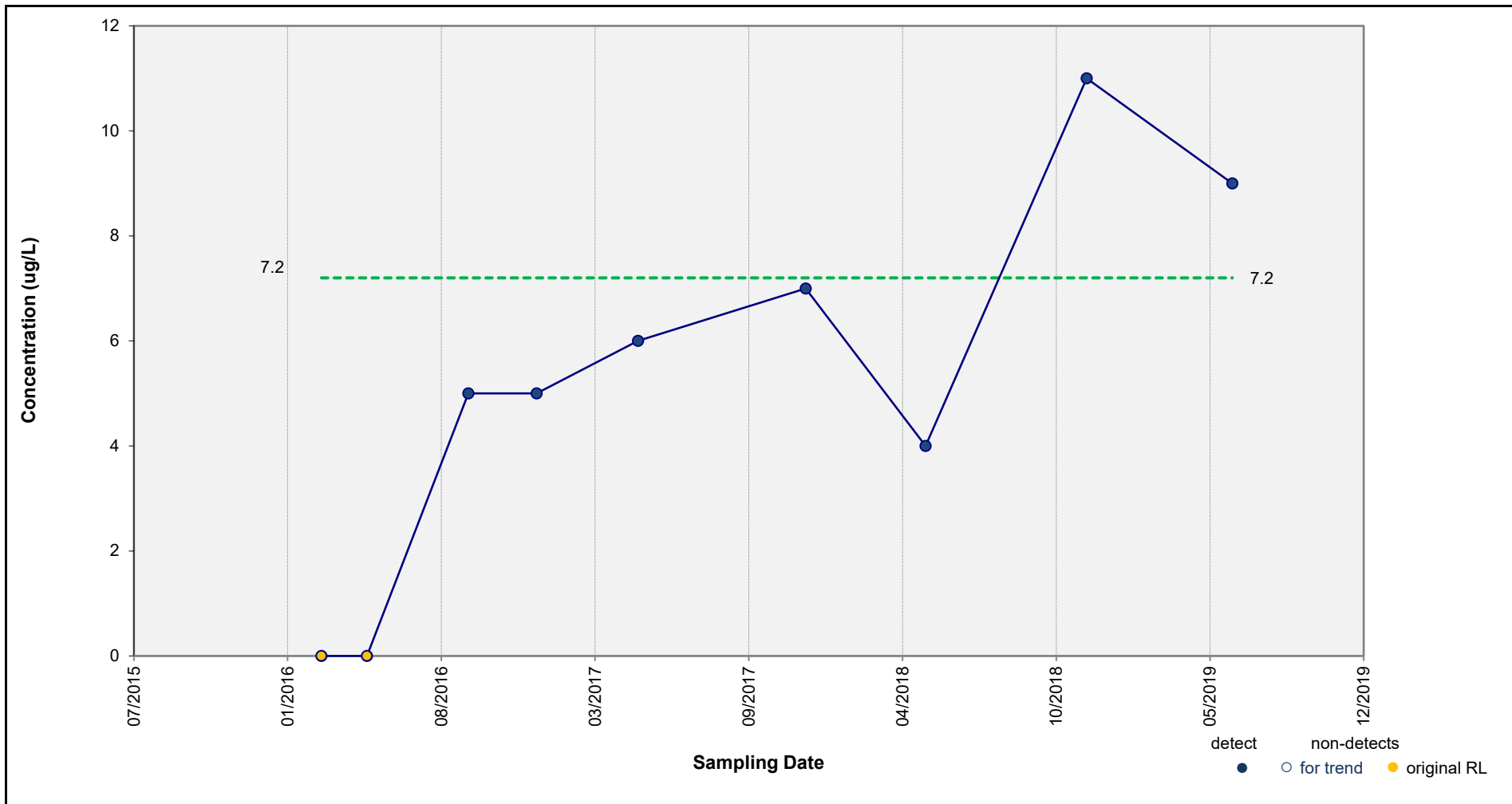
**NA**

Median Slope Estimate = 1.23E-02 mg/L per day  
 Confidence Interval on the Slope= -1.2E-01 to 9.4E-02 mg/L per day



**Concentration Plot: MW-15-72, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**INCREASING TREND**

p value =  Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

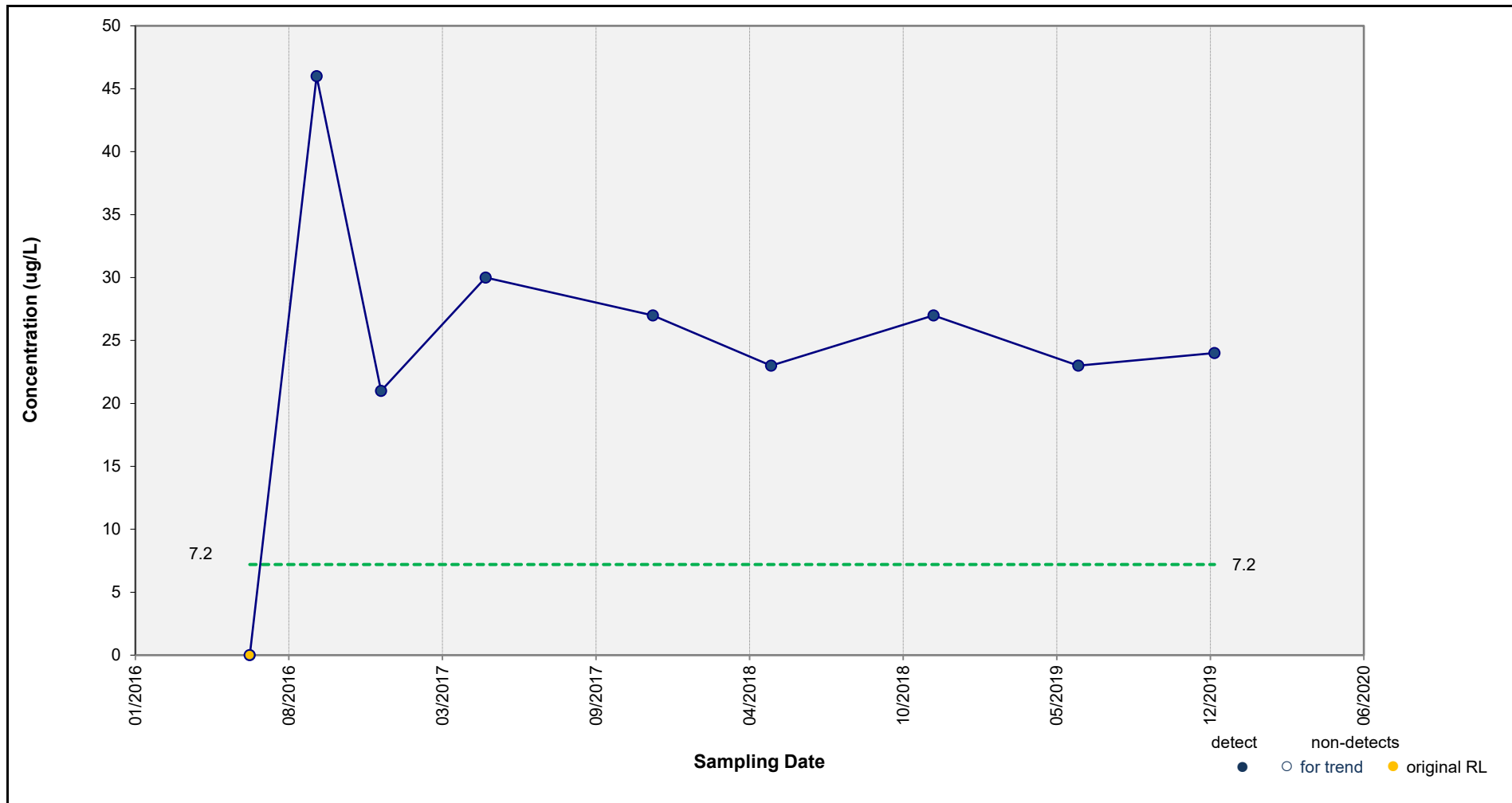
**NA**

Median Slope Estimate =  mg/L per day  
 Confidence Interval on the Slope =  to  mg/L per day



**Concentration Plot: MW-15-73, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**No Significant Trend**

p value = 0.20 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

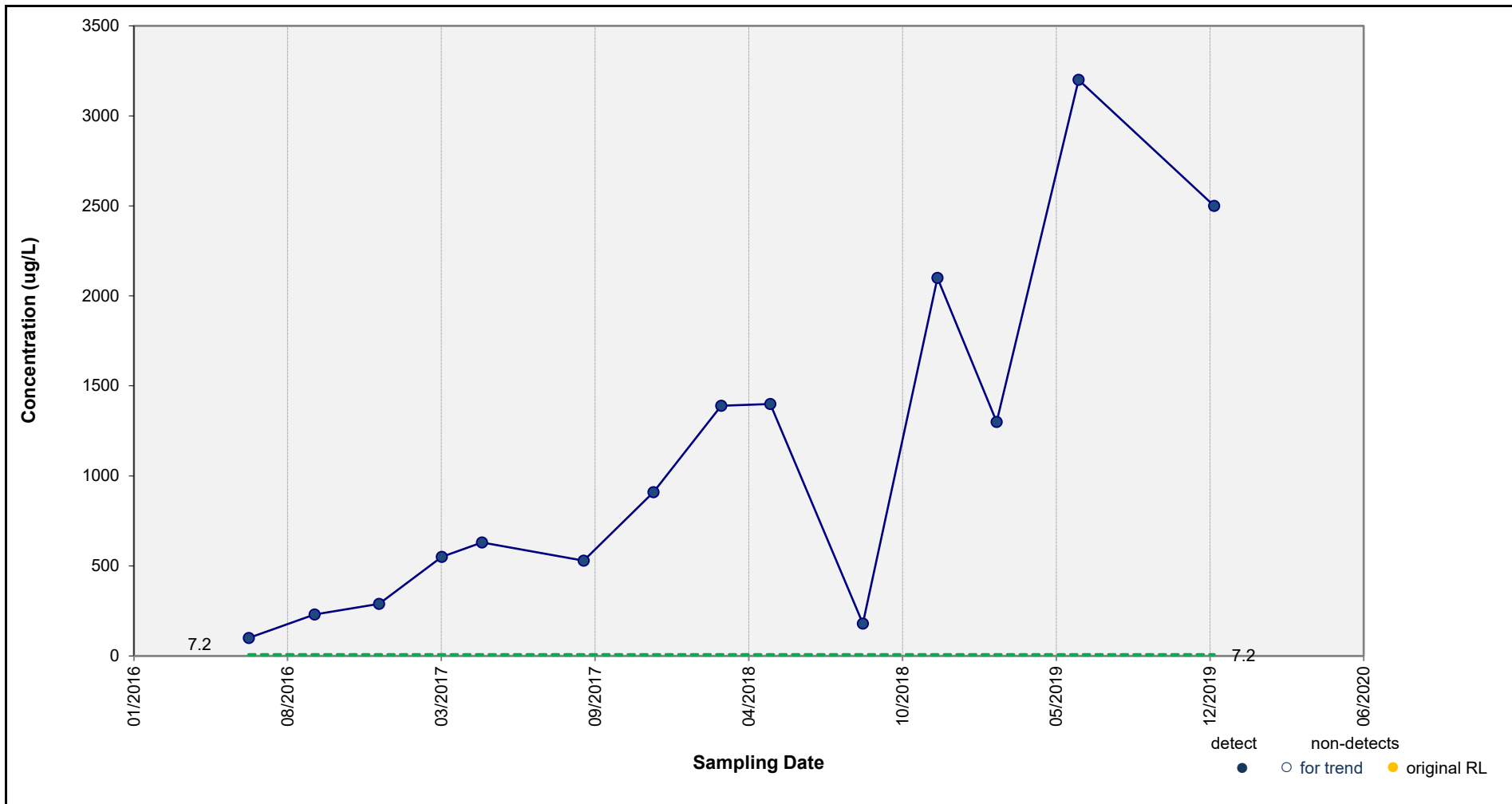
**NA**

Median Slope Estimate = -6.77E-03 mg/L per day  
 Confidence Interval on the Slope = -2.2E-02 to 2.0E-03 mg/L per day



**Concentration Plot: MW-16-80, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**INCREASING TREND**

p value =  Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

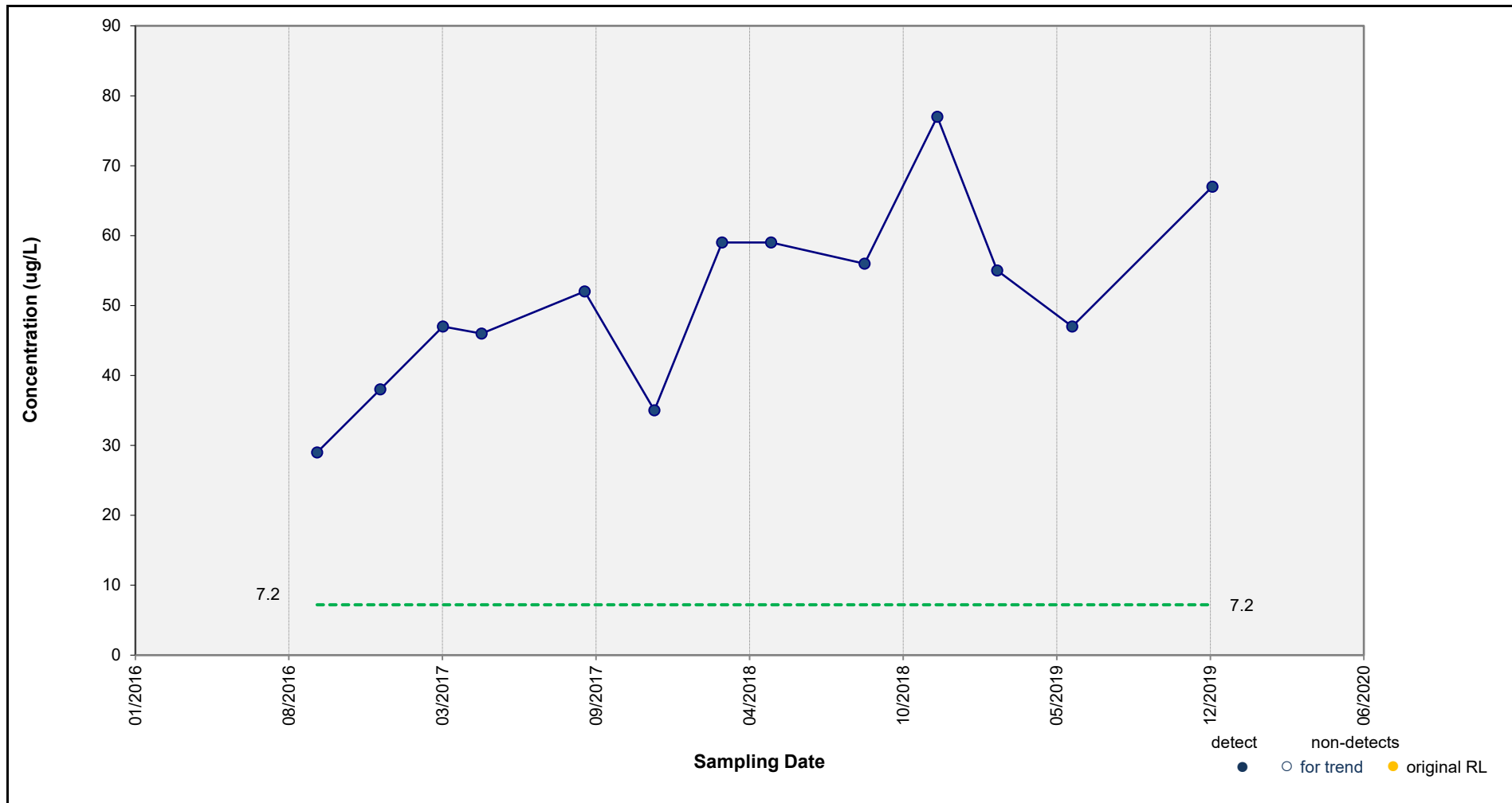
**NA**

Median Slope Estimate =  mg/L per day  
 Confidence Interval on the Slope =  to  mg/L per day



**Concentration Plot: MW-16-81, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**INCREASING TREND**

p value = 0.01 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

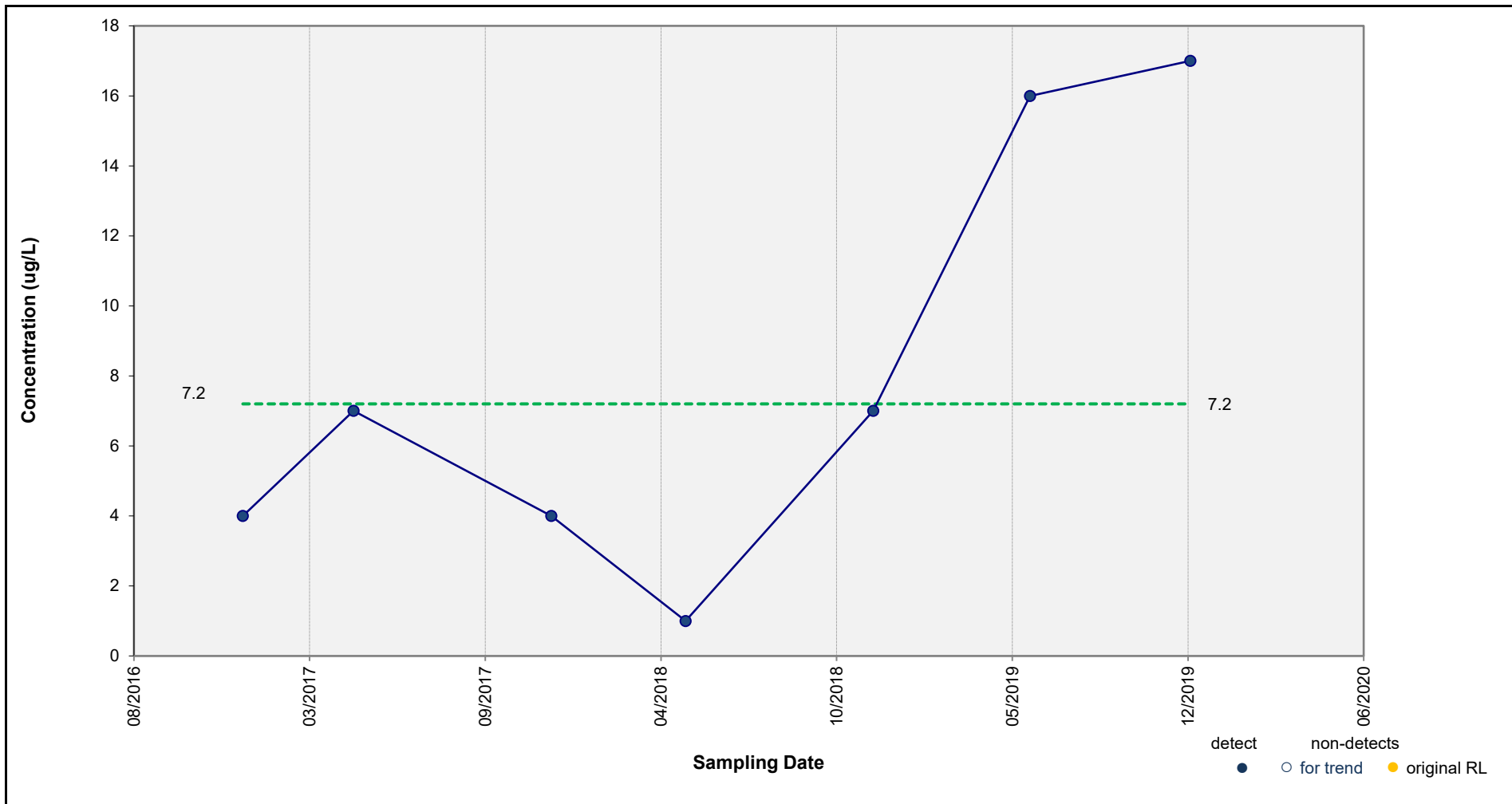
**NA**

Median Slope Estimate = 2.69E-02 mg/L per day  
Confidence Interval on the Slope= 1.2E-02 to 4.3E-02 mg/L per day



**Concentration Plot: MW-16-84, 1,4-Dioxane**  
RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**INCREASING TREND**

p value =  Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

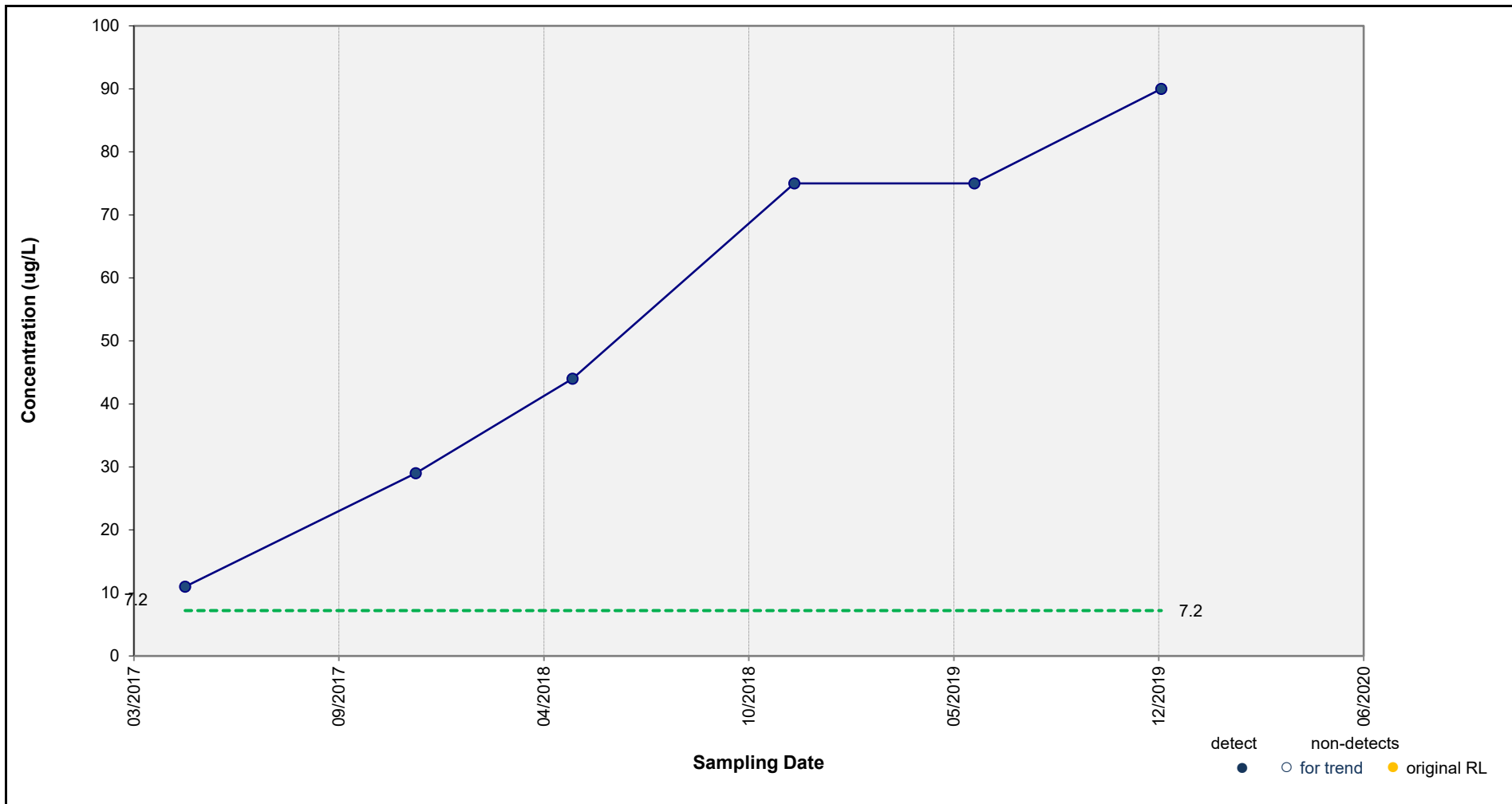
**NA**

Median Slope Estimate =  mg/L per day  
 Confidence Interval on the Slope =  to  mg/L per day



**Concentration Plot: MW-16-85, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**INCREASING TREND**

p value =  Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

**NA**

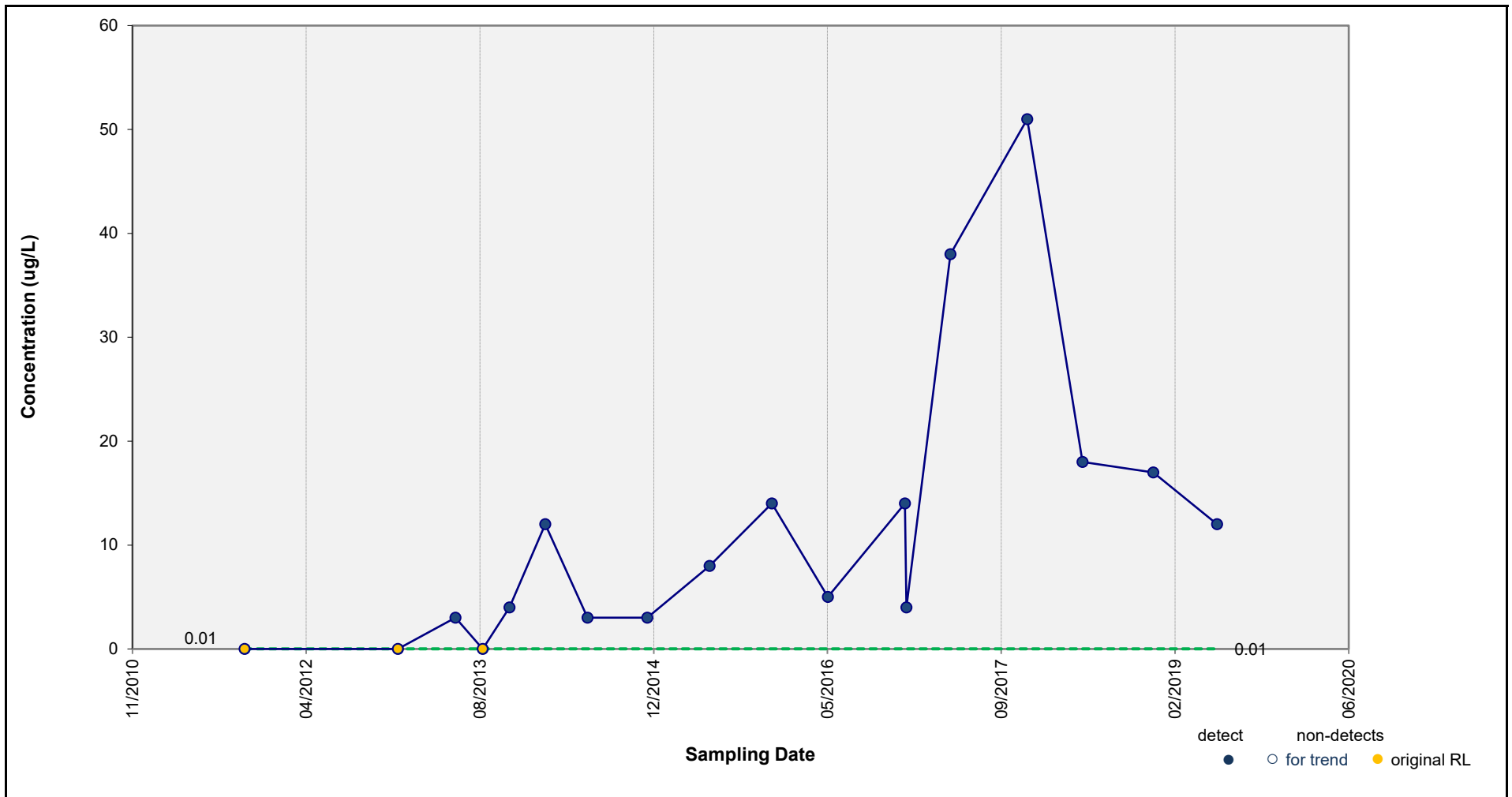
Median Slope Estimate =  mg/L per day  
 Confidence Interval on the Slope =  to  mg/L per day



**Concentration Plot: MW-17-86, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**





**Results of Mann-Kendall Test for Trend:**

**INCREASING TREND**

p value =  Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

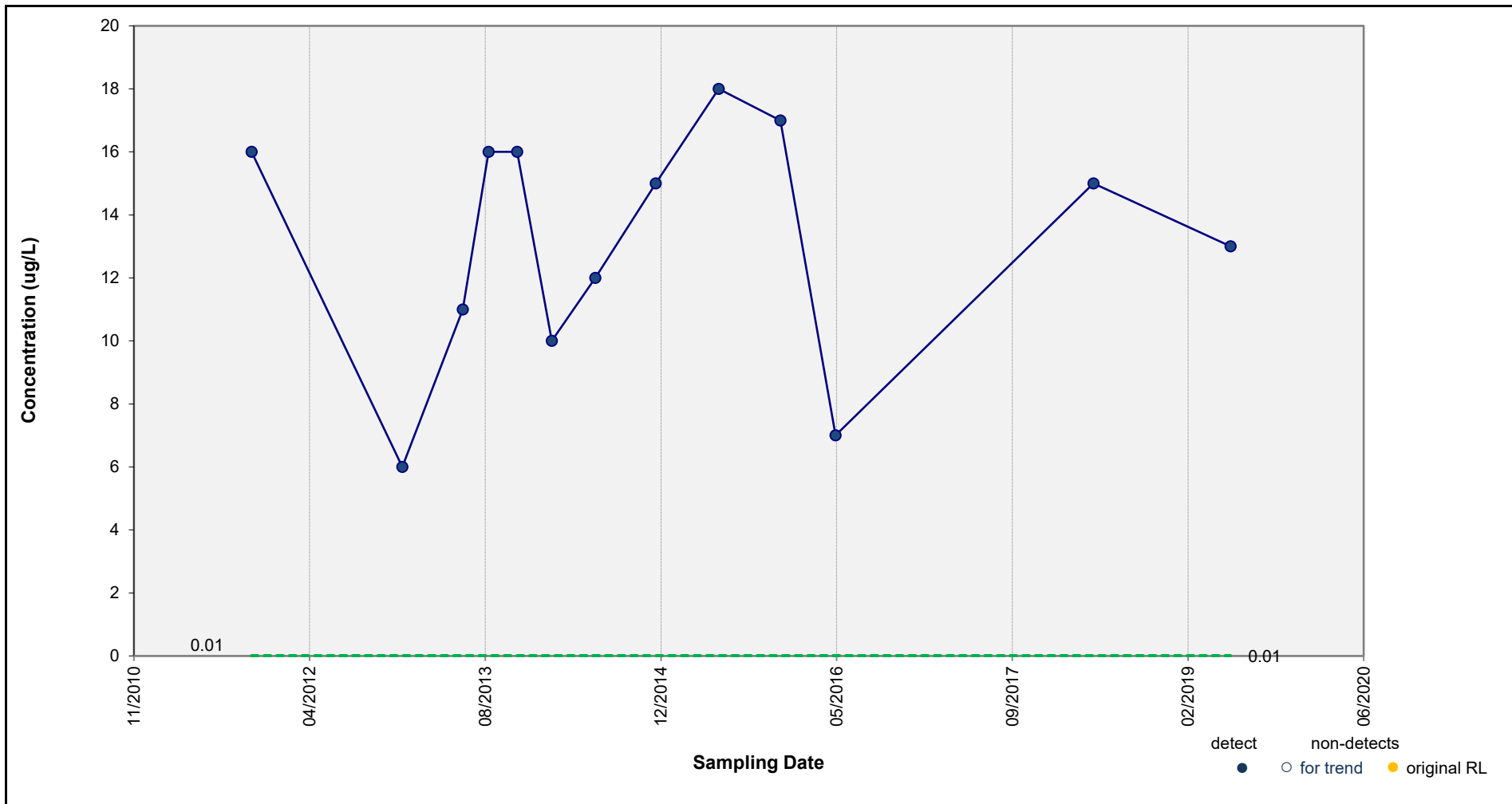
**NA**

Median Slope Estimate =  mg/L per day  
 Confidence Interval on the Slope=  to  mg/L per day



**Concentration Plot: MWBP-10-UST5-6, Arsenic**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**No Significant Trend**

p value = 0.38 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

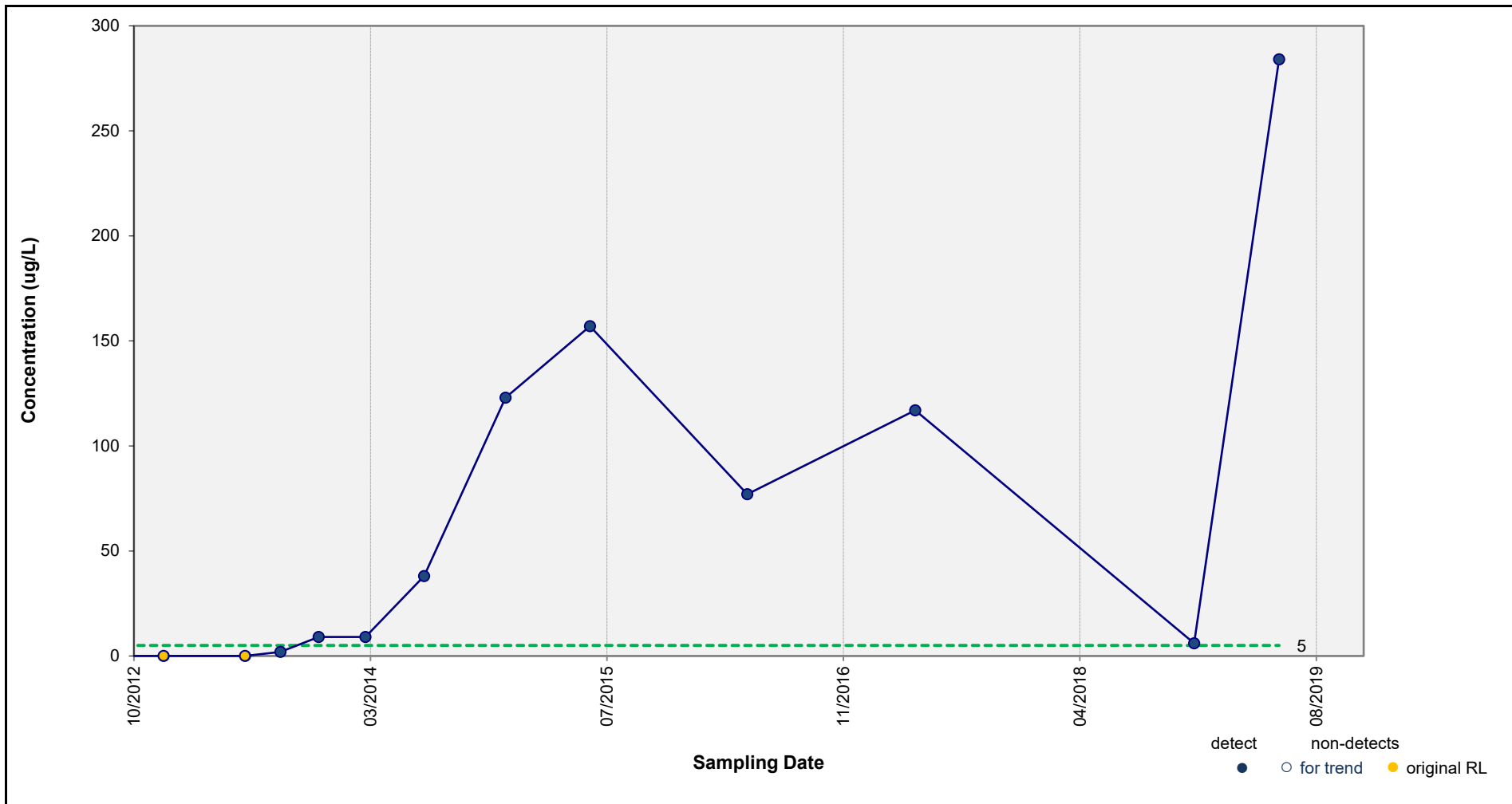
**NA**

Median Slope Estimate = 6.09E-04 mg/L per day  
 Confidence Interval on the Slope = -2.2E-03 to 3.3E-03 mg/L per day



**Concentration Plot: MWBP-12-UST1-4, Arsenic**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**INCREASING TREND**

p value = **0.03** Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

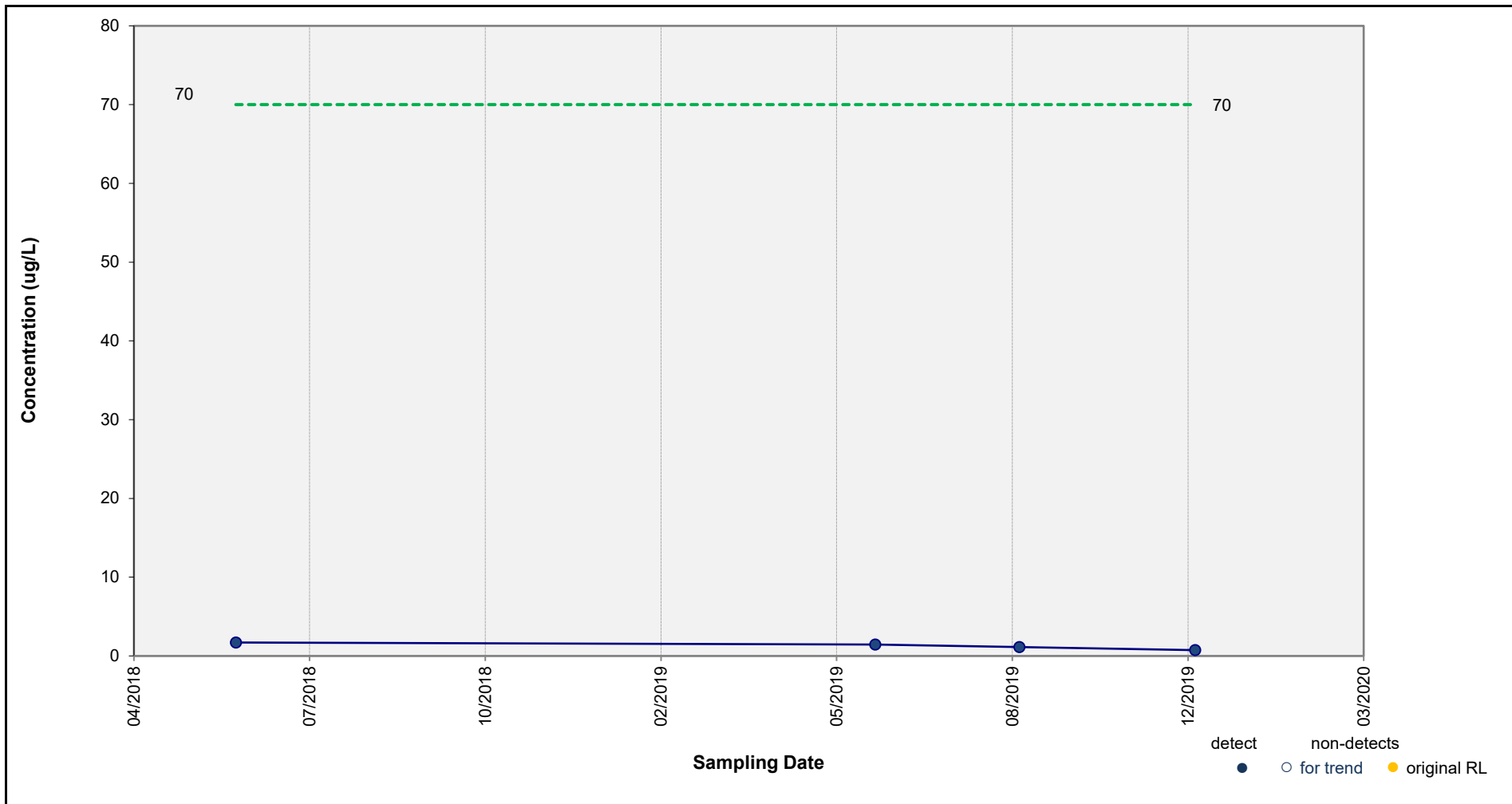
**NA**

Median Slope Estimate = **8.72E-02** mg/L per day  
 Confidence Interval on the Slope = **1.5E-02** to **1.4E-01** mg/L per day



**Concentration Plot: MWBP-12-UST1-4, Benzene**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**DECREASING TREND**

p value = 0.04 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

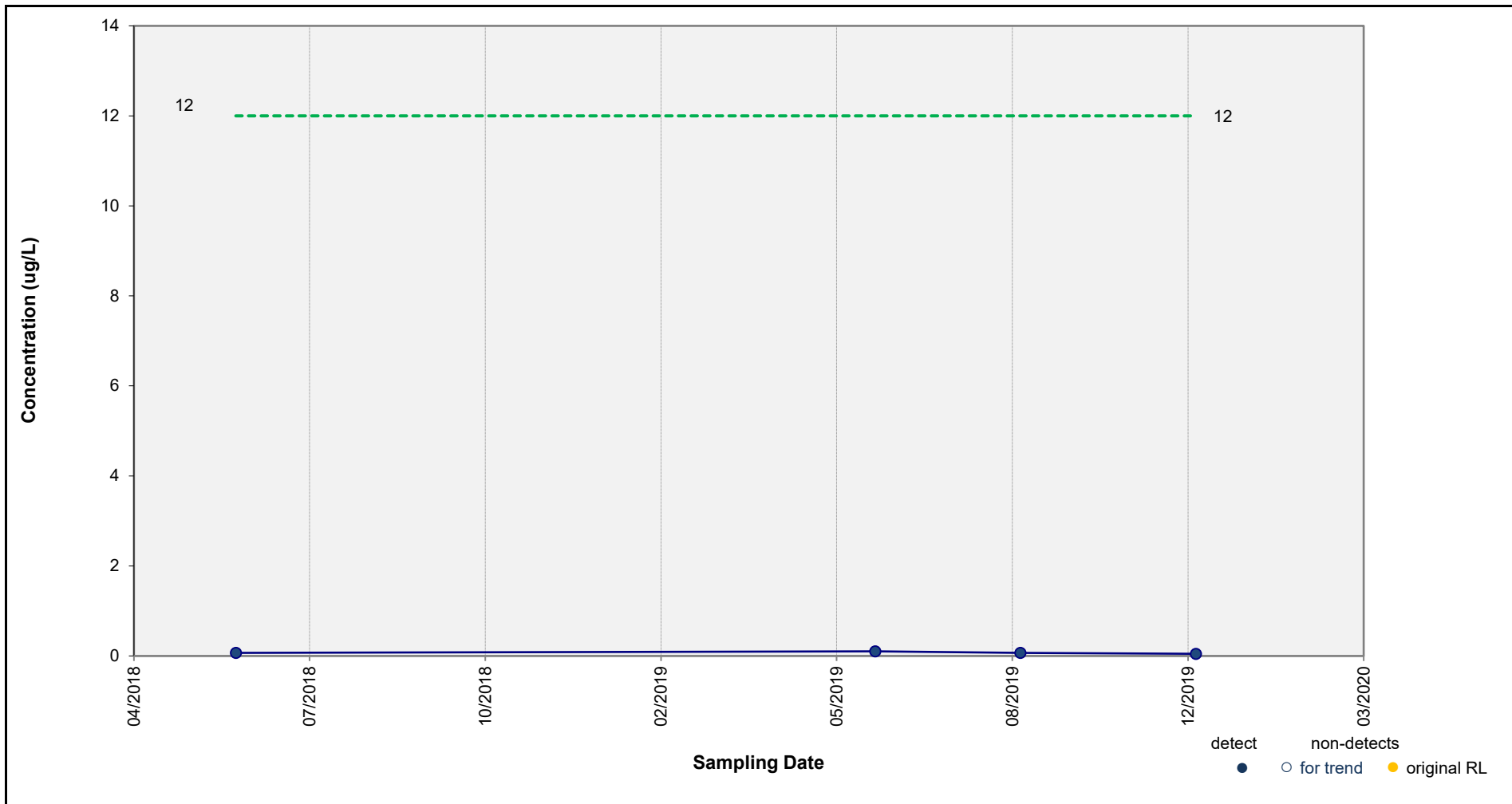
**NA**

Median Slope Estimate = NA mg/L per day  
Confidence Interval on the Slope= NA to NA mg/L per day



**Concentration Plot: P6-SB-07, Combined PFOS and PFOA**  
RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**No Significant Trend**

p value = 0.17 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

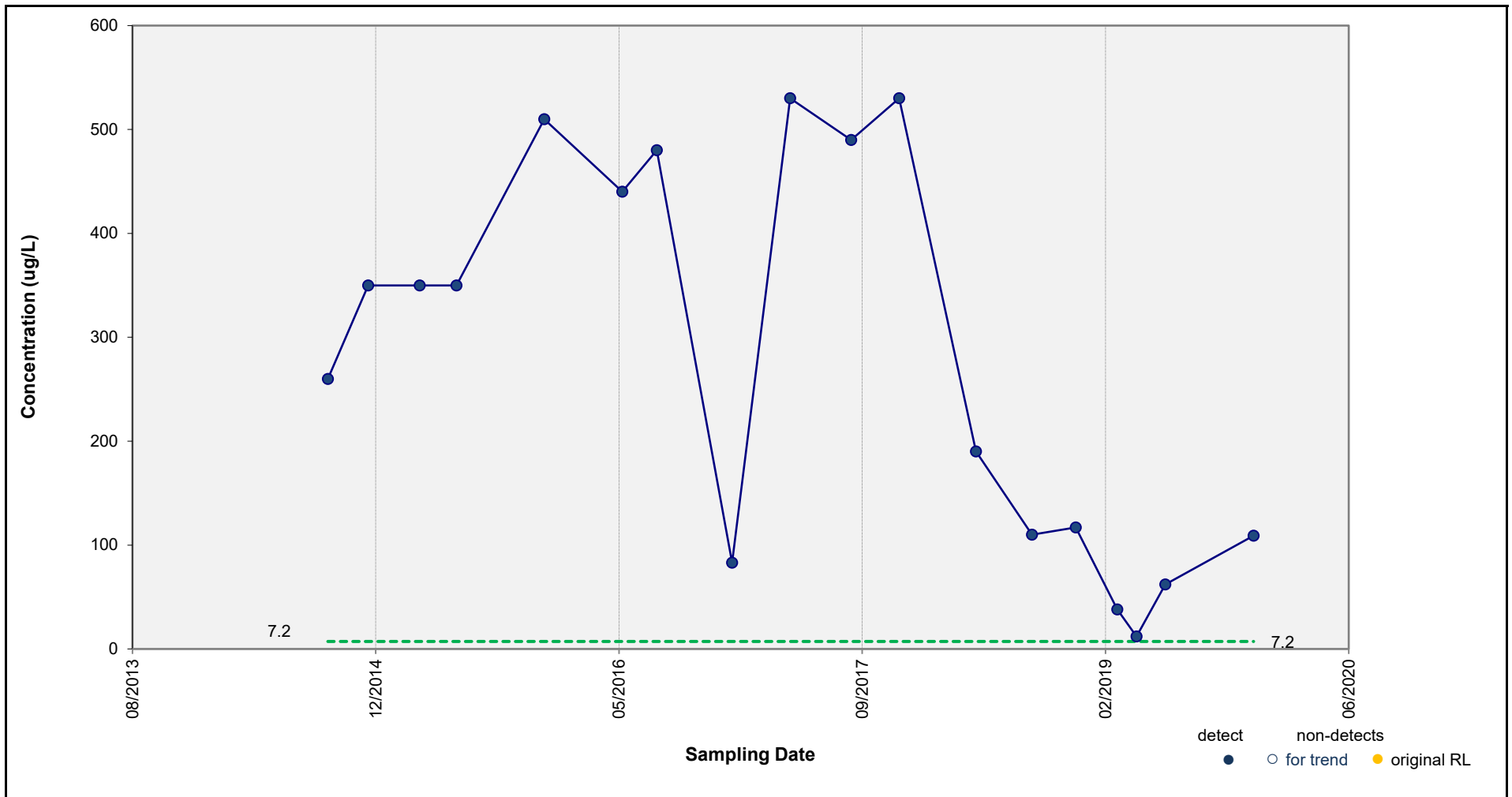
**NA**

Median Slope Estimate = NA mg/L per day  
Confidence Interval on the Slope= NA to NA mg/L per day



**Concentration Plot: P6-SB-07, PFOS**  
RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**DECREASING TREND**

p value = **0.03** Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

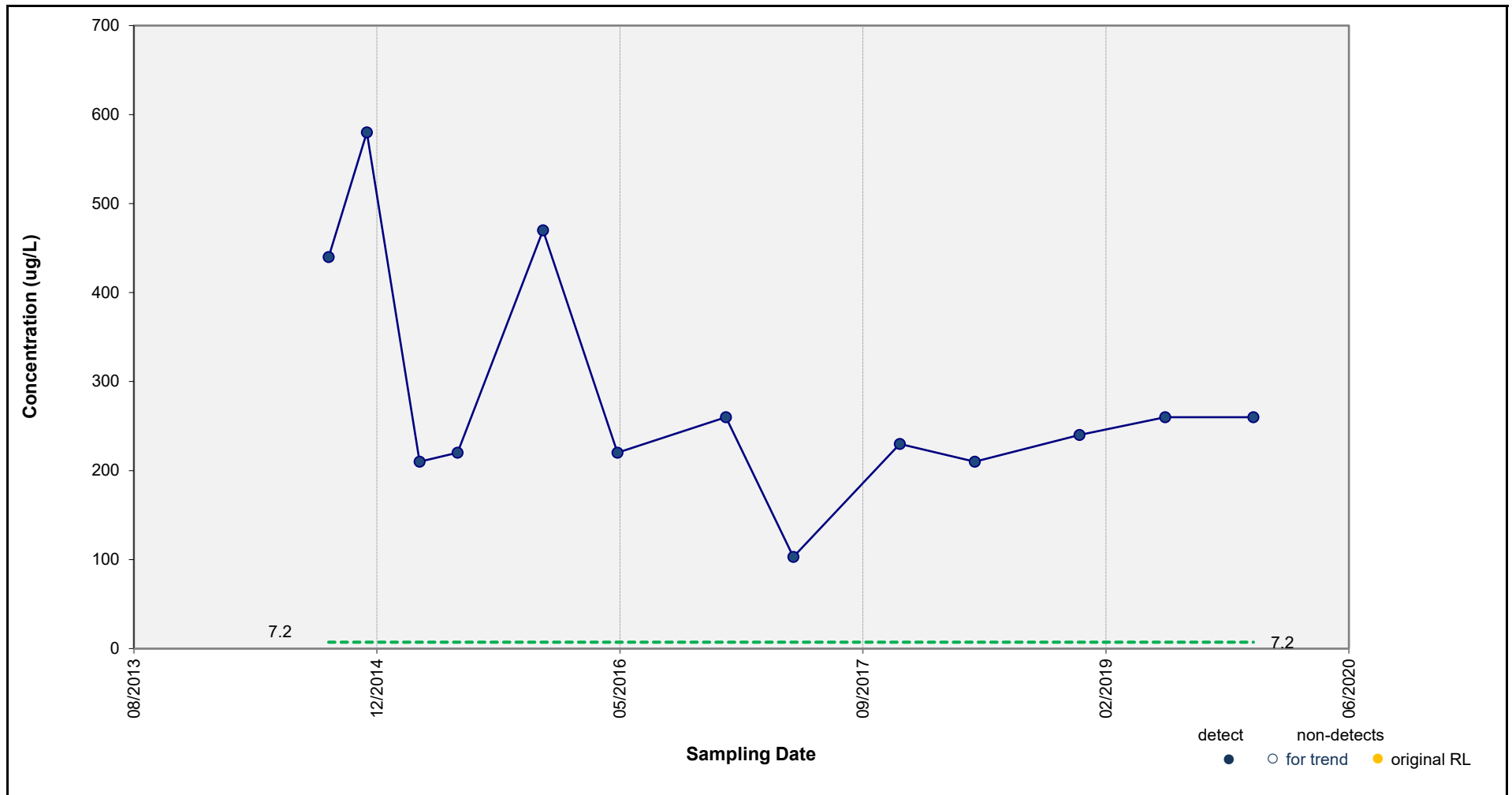
**NA**

Median Slope Estimate = **-1.73E-01** mg/L per day  
 Confidence Interval on the Slope= **-3.4E-01** to **-1.9E-02** mg/L per day



**Concentration Plot: PW-14-01, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



#### Results of Mann-Kendall Test for Trend:

#### No Significant Trend

p value = 0.40 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

#### Results of Sen's Estimator of Slope:

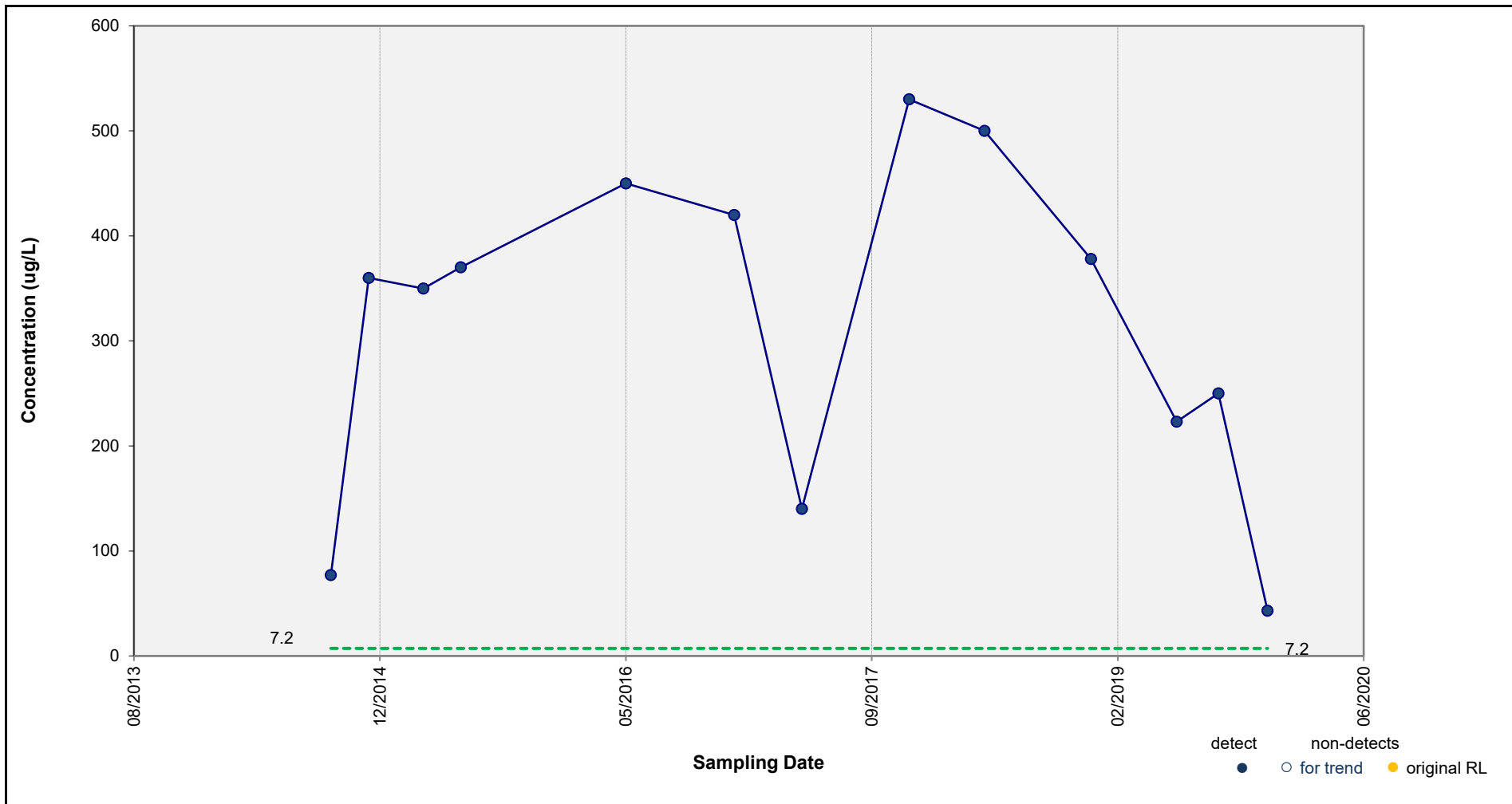
NA

Median Slope Estimate = -4.70E-03 mg/L per day  
Confidence Interval on the Slope = -1.7E-01 to 2.5E-02 mg/L per day



**Concentration Plot: PW-14-02, 1,4-Dioxane**  
RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



**Results of Mann-Kendall Test for Trend:**

**No Significant Trend**

p value = 0.48 Note: p value < 0.1 indicates a statistically significant trend (90% Confidence Interval).

**Results of Sen's Estimator of Slope:**

**NA**

Median Slope Estimate = -3.79E-02 mg/L per day  
 Confidence Interval on the Slope = -1.8E-01 to 1.1E-01 mg/L per day



**Concentration Plot: PW-14-03, 1,4-Dioxane**  
 RACER Lansing located at 2801 West Saginaw Street in Lansing, Michigan

**Attachment 1**



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